United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
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Carlsbad, California 92009

In Reply Refer To:
FWS-IMP-3419.2

JAN 2 5 2005

Memorandum

To: District Manager, Bureau of Land Management - California Desert District
Moreno Valley, California

From: Assistant Field Supervisor, Carlsbad Fish and Wildlife Office
Carlsbad, California Therese O'Rourke

Subject: Endangered Species Consultation on Management of Imperial Sand Dunes Recreation Based on the California Desert Conservation Area Plan, as Amended by the Proposed 2002 Recreation Area Management Plan (Bureau of Land Management Reference Number 6840(P) CA-063.50)

This document transmits our biological opinion based on our review of the California Desert Conservation Area (CDCA) Plan, as amended by the proposed Imperial Sand Dunes Recreation Area (ISDRA) Recreation Area Management Plan (RAMP), and modifications of the RAMP made during the consultation process. At issue are the effects of the CDCA Plan as amended by the RAMP, on the federally threatened Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*) and desert tortoise (*Xerobates agassizi*). This document was prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act). On September 5, 2003, the Bureau of Land Management (BLM) requested: (1) formal conference on proposed critical habitat for Peirson's milk-vetch; (2) clarification of the scope of our April 3, 2003, biological opinion in relation to RAMP longevity; and (3) correction of a "few factual errors." Based on this request, our review of the information received, and communications with your agency, we reinitiated consultation on Peirson's milk-vetch and desert tortoise and hereby issue a new biological opinion that includes analysis of the effects of the proposed action on critical habitat for Peirson's milk-vetch. We published a final critical habitat designation for Peirson's milk-vetch on August 4, 2004 (69FR47329), which became effective on September 3, 2004. Our critical habitat analysis for the biological opinion is based on the designation as described in the final rule.

This biological opinion is based on the following information: (1) *California Desert Conservation Area Plan*; (2) *Recreation Area Management Plan and Environmental Assessment for the Imperial Sand Dunes* (BLM 1987 or 1987 RAMP); (3) *Draft Imperial Sand Dunes Recreation Area Management Plan (RAMP)* (BLM 2002a or draft RAMP); (4) *Draft*

Environmental Impact Statement for a Proposed Recreation Area Management Plan and Amendment to the California Desert Conservation Area Plan: Imperial Sand Dunes Recreation Area (BLM 2002 or Draft EIS); (5) proposed *Imperial Sand Dunes Recreation Area Management Plan for the Imperial Sand Dunes Recreation Area* (BLM 2003 or proposed RAMP); (6) *Final Environmental Impact Statement for the Imperial Sand Dunes Recreation Area Management Plan and Proposed Amendment to the California Desert Conservation Plan 1980*; (7) *Biological Evaluation on Effects of the California Desert Conservation Area Plan as Amended by the North Eastern Mojave and North Eastern Colorado Preferred Alternatives and with Other Interim Measures on Ten T&E Plants, dated January 2001* (BLM 2001); and (8) various communications between the U.S. Fish and Wildlife Service (Service) and BLM including memos, letters and emails. A complete administrative record of this consultation is on file in the Carlsbad Fish and Wildlife Office.

In addition, a complete record of critical habitat designation for Peirson's milk-vetch and relevant biological opinions for desert tortoise can be found in the Carlsbad and Ventura Fish and Wildlife Offices.

CONSULTATION HISTORY

On March 16, 2000, the Southwest Center for Biological Diversity, the Sierra Club, and the Public Employees for Environmental Responsibility (PEER) filed a lawsuit against BLM. On August 25, 2000, the plaintiffs and BLM agreed to a settlement that was approved by the U.S. District Court, Northern California Division. The settlement included establishment of 4 temporary closure areas (approximately 49,000 acres) within the Algodones Dunes until completion of the record of decision regarding the CDCA Plan Environmental Impact Statement (EIS). At the request of BLM, the CDCA Plan level consultation was combined with the consultation on the proposed RAMP; consequently, the closures instituted as part of the settlement will continue until the record of decision for the RAMP is signed. In March 2002, BLM released the draft RAMP and EIS for public comment, and on July 17, 2002, the Service met with BLM and agreed to combine the biological opinion on the CDCA Plan with the biological opinion on the RAMP rather than issue separate consultations.

We completed a biological opinion on the effects of implementation of the CDCA Plan as amended by the draft ISDRA RAMP on April 3, 2003. Soon after the release of our biological opinion, BLM notified us by telephone conversation that select information in the biological opinion was inconsistent with the information in the draft EIS and proposed RAMP upon which our biological opinion relied, was factually incorrect, and indicated they would request amendment of the biological opinion so that the administrative record would be consistent with the forthcoming final EIS. In addition, BLM indicated their intention to modify several components of the proposed action in the final RAMP and requested that our future amended biological opinion address these specific changes as well. Accordingly, on April 9, 2003, BLM provided by facsimile an updated Table 2 from their forthcoming final RAMP that modified the table contained within the proposed RAMP. On April 18, 2003, BLM provided us by electronic

mail an update to the information contained in "Table 1: Synopsis of Management Planned" from our biological opinion, which we have incorporated herein. On April 21, April 30, and May 6, 2003, BLM and Service staff conducted a discussion via electronic mail regarding the BLM proposal to reinitiate consultation with the Service in 4 years.

Two parties, the American Sand Association (American Sand Association, *et al.* vs. U.S. Department of the Interior, Case No. 03CV4501-SI) and the Center for Biological Diversity (Center for Biological Diversity, *et al.* vs. Bureau of Land Management and United States Fish and Wildlife Service, Case No. C-03-2509) brought separate suits against the Service regarding our opinion.

On August 5, 2003, we published a proposed rule to designate critical habitat for Peirson's milk-vetch (68 FR 46143-46160). On September 5, 2003, BLM requested: (1) formal conference on proposed critical habitat for Peirson's milk-vetch; (2) clarification of the scope of our April 3, 2003, biological opinion in relation to RAMP longevity; and (3) correction of a "few factual errors." On October 2, 2003, BLM provided by facsimile a correction to the data provided in the Effects of the Action section of our biological opinion. We conducted several conference calls with BLM to discuss the use of monitoring data collected in spring 2004 as baseline data. After reviewing the actions that would be taken to protect Peirson's milk-vetch should a population decline to certain pre-determined levels occur, the Service and BLM determined that a mandatory reinitiation after 4 years was not necessary and would no longer be part of the project description. Agreement was also reached to manage the plant by coordinating annually and creating an adaptive management program that would be updated with new scientific data over the length of the ISDRA RAMP (not to exceed 15 years).

We reviewed and reexamined our biological opinion in light of BLM request for clarification and the proposal to designate critical habitat. As a result of this review, we determined that although BLM had proposed to reinitiate consultation if Peirson's milk-vetch population experienced declines of 50 percent in any management area, no meaningful population estimate against which to compare future population levels had been developed.

We suggested that one alternative for BLM to estimate population size was to use techniques in the ISDRA RAMP Monitoring Plan prior to re-opening areas currently closed to establish a "baseline" population estimate for future comparisons. BLM staff, in an e-mail dated November 12, 2003, submitted a "Proposed Interim Baseline" approach that relied upon abundance class values as a rough determinant of population size and distribution. We replied with comments and questions regarding this proposal to BLM on November 24, 2003. BLM elected to conduct a comprehensive survey in spring 2004 prior to implementation of the RAMP to develop population estimates in each management area.

In a letter dated December 7, 2003, BLM reiterated its intent to use the "Proposed Interim Baseline" and committed to implement the RAMP and evaluate the population estimates between the first 2 years of average to above average precipitation to determine if a 50 percent decline had

occurred in any management area. We continued to discuss with BLM staff the potential use of population data collected in years with comparable rainfall below the long-term mean to develop baseline parameters corresponding with different annual rainfall levels within the context of previous precipitation years. Given the near-normal precipitation levels in winter 2003-2004, BLM and the Service agreed that population estimates derived from 2004 data could be used as a baseline for future population comparisons after re-opening the 4 temporary closure areas. We ultimately agreed to use population estimates of reproductive plants based on data collected during 2004 as an initial baseline against which to compare future changes in the population size. We reached this agreement with the understanding that this baseline may be adjusted in the future with mutual concurrence of BLM and the Service.

On January 9, 2004, we met with BLM to discuss various consultations, including the consultation at issue. On January 21, 2004, we conducted a conference call with BLM to discuss upcoming monitoring plans for spring 2004. The Service and BLM held subsequent meetings and conference calls, and exchanged facsimiles and emails to complete the consultation process.

Several meetings were held between the Service and BLM during the week of July 12, 2004, to refine the proposed action and clarify statements and questions. BLM has provided the Service with summary statistics from the 2004 monitoring, but has not yet completed a report providing analysis and interpretation of these data collected for Peirson's milk-vetch.

We published a final critical habitat designation for Peirson's milk-vetch on August 4, 2004 (69 FR 47329), which became effective on September 3, 2004. Numerous conference calls and drafts of the biological opinion were exchanged between BLM, Service, and DOI Solicitors, leading to this final biological opinion.

DESCRIPTION OF THE PROPOSED ACTION

Purpose and Function of the CDCA Plan

Congress designated the CDCA with section 601(c) of the Federal Land Policy and Management Act of 1976 (FLPMA). To provide for management of recreational use and to resolve other resource and public land use conflicts, FLPMA also directed the Secretary of the Interior to "prepare and implement a comprehensive, long-range plan for management, use, development, and protection of the public lands within the California Desert Conservation Area." The purpose, as specified by Congress, was "to provide for the immediate and future protection and administration of the public lands in the California Desert within the framework of a program of multiple use and sustained yield, and the maintenance of environmental quality." The CDCA Plan was signed in January 1980, and it now serves as the primary document that describes the basic management principles BLM uses for managing its portion of the CDCA. Since adoption, nine major amendments to the CDCA Plan have been completed.

The CDCA Plan employs three basic tools for managing resources in the CDCA. These tools are:

1. Four multiple-use classes that are the basis of a land zoning system allowing for a variety of uses and resource conservation activities;

2. Twelve elements that provide detailed guidance addressing the management of different land uses and resources; and

3. The designation of special management areas, including, but not limited to, special areas and areas of critical environmental concern, that provide for the conservation of specific resource values.

Future Consultations

The CDCA Plan provides program guidance in numerous places that threatened and endangered species will be protected through compliance with the Act. BLM also notes in other documents that future consultations, pursuant to section 7(a)(2) of the Act, would be required for site-specific actions. Consequently, we have not repeated these commitments throughout the description of the proposed actions.

Multiple-Use Classes

To more effectively and consistently manage its portion of land within the CDCA boundary, BLM has developed a land zoning system that provides specific land management prescriptions. Under this zoning strategy, lands managed by BLM are assigned 1 of 4 multiple-use classes. The multiple-use class assignment is based on the considered sensitivity of resources and kinds of uses occurring in each geographic area. The 4 multiple-use classes are Class C (Controlled Use), Class L (Limited Use), Class M (Moderate Use), and Class I (Intensive Use).

Multiple-Use Class C: Within the ISDRA, the California Desert Protection Act designated the Northern Algodones Dunes Wilderness Management Area. Formally designated wilderness areas and areas that have been recommended as being suitable for wilderness designation are managed under this class. Congress designated wilderness areas across large portions of the CDCA in 1994 with the California Desert Protection Act; these Congressional designations supersede the multiple-use class boundaries assigned by BLM in 1980 when the CDCA Plan was finalized.

Multiple-Use Class L: Lands within this class include areas that are managed to provide for lower density, carefully controlled multiple uses of resources while ensuring that sensitive values are not significantly diminished.

Multiple-Use Class M: Lands within this class include areas that are managed to provide for a wide variety of present or future uses that include mining, livestock grazing, recreation, energy, and utility development.

Multiple-Use Class I: Lands within this class include areas that will experience concentrated use serving human needs. BLM attempts to mitigate impacts to resource values in Multiple-Use Class I lands and attempts to rehabilitate disturbed areas to the extent possible.

The following section describes the differences between land classifications as they relate to the species under consideration in this biological opinion.

All land-use actions and resource-management activities on public lands must meet the guidelines for the class of land on which they would occur. These guidelines are divided into 19 categories and are fully described in the CDCA Plan (BLM 1999). The guidelines for Class L and M lands typically require any proposed action to undergo site-specific analysis, with protective measures added to any permit or grant issued by BLM. Most of the guideline categories are addressed later in the Program Elements section. Other guideline categories that do not fall within one of the program elements are discussed below.

Agriculture: Guidance on agricultural practices and uses stipulates that crop cultivation is not allowed on Class C, L, M and I lands. Because this program guidance prohibits the disturbance of land that may be occupied by these species for agriculture, it will not adversely affect the Peirson's milk-vetch, Peirson's milk-vetch critical habitat, or desert tortoise and will not be discussed further in this document.

Air quality: BLM manages Class C, L, M and I lands to protect air quality and visibility in accordance with Class II objectives of Part C of the Clean Air Act unless otherwise designated another class by the State of California as a result of recommendations developed by any air-quality management plan developed by BLM. We anticipate this guideline is not likely to adversely affect Peirson's milk-vetch, Peirson's milk-vetch critical habitat, or desert tortoise because maintenance of Class II objectives should not impair the growth or reproduction of individuals of these taxa. Consequently, the air quality guidelines will not be discussed further in this document.

Water quality: Class C lands are managed to maintain both surface and groundwater resources. Class L lands are managed for the protection and enhancement of surface and groundwater resources, except for instances of short-term degradation caused by water development projects; this exception applies to spring-boxes and other devices used at springs and streams to provide water to livestock (Foreman, pers. comm. 2003) and does not apply to the ISDRA, because there are no livestock grazing allotments. Class M and I lands are managed to minimize degradation of water resources. Best management practices, developed during the planning process for specific projects, will be used to avoid degradation from projects on Class C, L, M, and I lands. The only BLM water development projects in the ISDRA are wildlife guzzlers in the microphyll

woodland areas on the east side of the ISDRA. Because these projects are outside of the area occupied by Peirson's milk-vetch and outside of Peirson's milk-vetch critical habitat, no potential for water development exists within the habitat of the species. As a result, this program guidance is not likely to adversely affect the species, and it will not be discussed further in this document with regard to that species. The potential impacts of wildlife guzzlers on desert tortoise are discussed under the section, Effects of the Action.

Fire management: Measures to suppress fires are taken in accordance with specific fire management procedures. The only areas within the ISDRA that could support a wildfire are the microphyll woodland habitat on the east side of the ISDRA and possibly creosote bush scrub habitat on the west and east sides of the ISDRA. Because Peirson's milk-vetch does not occur in either of these habitats, and Peirson's milk-vetch critical habitat does not occur in these areas, no impacts from fire suppression activities are likely to affect this species. Potential impacts to desert tortoise are discussed under the section, Effects of the Action.

Prescribed burning is not allowed on Class C lands. It may be allowed on Class L, M, and I lands after development of a site-specific management plan. However, BLM has not previously conducted prescribed burns in the ISDRA and the agency is highly unlikely to do so in the future, given the low fuel loads in these areas and the fact that the habitats within the ISDRA are not fire-adapted. Because it is highly unlikely to be proposed, we will not discuss prescribed burning again in this document.

Waste disposal: No waste disposal sites are allowed on Class C lands and no new waste disposal sites are allowed on Class L lands. Because no existing waste disposal sites exist on Class L lands within the ISDRA, no adverse effects will occur from this guideline on Peirson's milk-vetch, Peirson's milk-vetch critical habitat, or desert tortoise on either Class C or L lands. As a result, the guideline will not be discussed further in this document in relation to Class C or L lands.

Within Class M and I lands, public lands managed by BLM may not be used for disposal of hazardous or non-hazardous waste. Where locations suitable for such disposal are found on BLM lands, these lands may be transferred to other ownership for this use. BLM's major emphasis within the ISDRA is recreation and the conservation of sensitive resources. Because of this and the availability of land outside the ISDRA for landfills for the cities within the Imperial Valley, the likelihood that BLM would transfer land within the ISDRA for use as a landfill is low. Therefore, the waste disposal element is unlikely to adversely affect Peirson's milk-vetch, Peirson's milk-vetch critical habitat or desert tortoise and we will not consider it further in this biological opinion.

Program Elements

Twelve program elements provide more specific application of the multiple-use class guidelines for resources or activities that have been identified as a matter of public interest. Each element

has a set of goals and planned actions and a description of how these goals and actions will be implemented and monitored. Descriptions of the elements follow (additional detail can be found in the CDCA Plan and ISDRA RAMP):

Cultural Resources Element: Historic and prehistoric remains that include, but are not limited to, paleontological resources, such as vertebrate and invertebrate fossils, historic and prehistoric routes, road side artifacts, and historic buildings are managed under this element. Typically, activities associated with this program element are designed to protect historic and prehistoric remains. BLM may undertake activities to stabilize or restore areas supporting cultural and paleontological resources. Locations supporting these resources may be monitored. BLM may also permit well-directed research at sites supporting these resources.

Based on the information provided by BLM, the areas within the ISDRA do not support any specific paleontological resources. The final EIS lists 126 prehistoric and historic period cultural sites within the ISDRA and the surrounding 1-mile-wide Planning Area boundary. Twenty-four of these sites are within the dunes system. Most of the 126 sites are within the Planning Area boundary or Ogilby Management Area.

Given the nature of activities associated with BLM's management of cultural and paleontological resources, Peirson's milk-vetch, Peirson's milk-vetch critical habitat, and desert tortoise are not likely to be adversely affected by this program element. Consequently, we will not discuss this program element further in this document.

Native American Element: American Indian tribes have lived within the boundary of the CDCA for several thousand years and have left thousands of sites containing Native American artifacts such as burial remains, lithic scatter sites, and objects associated with historic or prehistoric hunting camps or long-term residences. Members of Native American tribes consider BLM lands within the CDCA as part of their tribal homeland; they may wish to use these lands for a variety of activities that relate to hunting, religious worship, and collection or cultivation of plant resources.

To protect historic and prehistoric artifacts and provide for the continued use of the desert landscape by Native Americans, BLM uses several tools, including land use designations (e.g., Class C or L and areas of critical environmental concern) and development of activity plans for site-specific management. BLM and different tribal governments also hold formal and informal discussions or communications on an irregular basis. Guidance for this element requires BLM to provide full consideration to Native American values in land use planning and management decisions. BLM has also committed to manage and protect these values whenever prudent and feasible.

Based on the information provided by BLM, the species do not occur in any specific sites that are especially important to Native Americans. Because of the existing program's guidelines and elements and the nature of activities that could occur under them, Peirson's milk-vetch, Peirson's

milk-vetch critical habitat, and desert tortoise are not likely to be adversely affected by the activities related to BLM's management of Native American artifacts and sites. Consequently, we will not discuss this program element further in this document.

Wildlife Element: BLM manages wildlife through a variety of mechanisms that include the development of habitat management plans or activity plans for areas of critical environmental concern, the designation of special management areas or vehicle routes, or the development of Sikes Act agreements. This element calls for baseline monitoring of certain wildlife populations and how use of the desert may be affecting this resource. No predator and pest control is allowed on Class C lands except to alleviate public health hazards or to protect endangered species. Within Class L, M, and I lands, control of depredating wildlife and pests is allowed in accordance with existing State and Federal laws. Habitat may be manipulated to improve its value for wildlife. Within Class M and I lands, chemical and mechanical manipulation may be allowed. The reintroduction or introduction of native or established exotic animal species is allowed within Class L, M, and I lands.

Vegetation Element: Vegetation management within the CDCA may include vegetation production; plant harvesting; management of rare, threatened, and endangered species; designation and management of unusual plant assemblages; and vegetation manipulation that is designed to promote the growth of desirable species such as jojoba (*Simmondsia californica*) or retard the spread of undesirable weedy plants such as salt cedar (*Tamarix ramosissima*). Vegetation production is typically a passive, naturally occurring process that is influenced by seasonal growth patterns and precipitation rates. Management of rare, threatened, or endangered species typically includes survey work designed to determine their distribution, abundance, and status. Unusual plant assemblages are plant communities that are recognized for their unusual age, size, cover, or density, or that represent a disjunct distribution. Unusual plant assemblages also include relatively rare plant assemblages that are typically associated with wetland, riparian, limestone outcrop, or sand dune habitats. Designation of an unusual plant assemblage benefits vegetation communities because these areas receive additional consideration during impact analyses.

No commercial harvesting of native plants is allowed on Class C lands. Noncommercial harvesting of native plants may be allowed by permit only after an Environmental Assessment or Environmental Impact Statement is prepared and after development of necessary stipulations. On Class L, M, and I lands, removal of native plants for commercial and non-commercial purposes and harvesting by mechanical means may be allowed by permit.

Aerial application of chemical controls to manipulate vegetation is not allowed on Class C, L, M, and I lands. Spot application of herbicides is not allowed on Class C lands. Eradication of noxious weeds on Class L lands by chemical means may be allowed after site-specific planning. Spot application of pesticides on Class M and I lands may be allowed after site-specific planning.

Wild Horses and Burros Element: Free-ranging horses and burros are present in numerous areas of the Mojave and Colorado Deserts. BLM manages animals under its jurisdiction according to the guidelines contained within the Wild and Free-Roaming Horse and Burro Act. These management activities are designed to achieve and maintain population levels that ensure healthy herds and maintain a thriving natural ecological balance with the surrounding biological community. Management of burros and horses is facilitated with the designation of herd management areas.

The wild horse and burro element is not likely to adversely affect Peirson's milk-vetch, Peirson's milk-vetch critical habitat, or desert tortoise in the ISDRA because the distribution of these species and Peirson's milk-vetch critical habitat does not overlap with the designated herd management areas. Consequently, the wild horse and burro element will not be discussed further in this document.

Livestock Grazing Element: Grazing may be permitted on Class L, M and I lands. No grazing allotments occur in the ISDRA. Consequently, because Peirson's milk-vetch, Peirson's milk-vetch critical habitat, and desert tortoise are not likely to be adversely affected by the livestock grazing element, we will not discuss this element further in this document.

Energy Production and Utility Corridors Element: Utility planning corridors are designated to consolidate facilities that facilitate telecommunications capabilities and the bulk transfer of electricity, gas, water, petroleum, and other commodities. To minimize the number of separate rights-of-way for different and unrelated utility projects, 16 planning corridors have been identified. There are 2 utility corridors within Peirson's milk-vetch habitat.

In addition, BLM may allow conventional, solar, geothermal, wind, and nuclear power plants on Class M and I lands and the siting of microwave tower and other communication sites on Class L, M or I lands. Such facilities typically require the development of a road for access.

Land-Tenure Adjustment Element: The land-tenure adjustment element is designed to direct the acquisition and disposal of public lands within the CDCA. The purpose for acquiring and disposing of public lands is related to the difficulty of effectively and efficiently managing a land base that possesses an intermingled land ownership. BLM, therefore, has a program for acquiring lands that may improve the operational management aspects for special areas such as areas of critical environmental concern, intensive use recreation areas, and Class C lands. Conversely, other lands that may have a limited resource value may be sold at fair market value if the action is deemed to be beneficial.

Geology, Energy, Minerals Resources Element: Forty-six mineral commodities, including some of national and international importance, are known to exist in the CDCA. Sand and gravel and geothermal resources occur within the action area for this consultation.

Most exploration and development activity on public lands in the CDCA is guided and authorized under the General Mining Law of 1872 (30 U.S.C. 22 *et seq.*). Other applicable laws that regulate extraction and exploration for mineral resources include the Mineral Leasing Act of 1920 (30 U.S.C. 181 *et seq.*), Geothermal Steam Act of 1970 (30 U.S.C. 1001 *et seq.*), and the Materials Act of 1947, as amended (30 U.S.C. 701 *et seq.*). Collectively, these laws allow use of surface resources provided that the activities comply with appropriate Federal and State laws and rules. Regulations developed pursuant to FLPMA (43 CFR § 3802 and § 3809) guide BLM in managing surface operations under the mining laws for purposes of preventing undue or unnecessary degradation to public land and undue impairment to public lands and resources in the CDCA. BLM defines undue impairment as substantial irreparable harm to significant scientific, cultural, or environmental resource values of the public lands that cannot be effectively mitigated.

The Code of Federal Regulations addresses three distinct scales of mining operation. The new editions of the CDCA Plan have been revised to include changes to the mining regulations that were addressed in the *Federal Register* on January 20, 2001 (BLM 1999). The new regulations affect three distinct categories of mining operations: casual use, notice required, and plan of operation.

Under the mining regulations, lands affected by all operations will be reclaimed, regardless of whether the operations are conducted under the casual use category, under a notice, or under a plan of operation. Regulations for reclamation activities are provided in 43 CFR § 3809.1-3(d) and include guidance regarding the development of access routes; disposal of tailings, dumps, deleterious materials or substances, and other waste produced by the operations; reclamation of the disturbed area; and inspection of the reclaimed area.

Approval of any plan of operation will be subject to changes or conditions that are necessary to meet the performance standards and to prevent unnecessary or undue degradation. BLM may require the operator to incorporate into the plan of operation other agency permits, final approved engineering designs and plans, or other conditions of approval. No operations may be conducted until BLM approves the plan of operation and receives the financial guarantee.

Extraction of geothermal, oil, and gas reserves may also take place on BLM lands. Areas that may contain geothermal resources may be designated as a known geothermal resource area.

All operating plans are reviewed to ensure that the compliance guidelines of the National Environmental Policy Act are met.

Recreation and Motorized Vehicle Elements: These elements include activities that involve motorized (e.g., dune buggies, dirt bikes, all terrain vehicles) and non-motorized recreation (e.g., target shooting, land sailing, rock hounding, hiking, sight seeing, hunting, camping, bird watching, nature study). Motorized recreation includes point-to-point travel on existing routes as part of organized events or on a casual basis; it also involves free play within designated off-

highway vehicle (OHV) management areas. The element also provides for the development of trails and facilities to meet visitor service needs. BLM has a public outreach program that is intended to provide visitors with information on the desert and increase environmental awareness. A volunteer program and maps and brochures produced by BLM assist in this effort.

Guidelines Applicable to the CDCA *as a whole regarding Recreation and Motorized Use.* Following are the recreation and motorized vehicle access guidelines that apply generally to the multiple-use classes in the CDCA as a whole. With respect to the guidelines as they apply to the use of motorized vehicles, there are special guidelines for sand dune areas within the CDCA. The guidelines specific to sand dunes will be discussed following a discussion of the guidelines as they apply generally to the CDCA as a whole.

Within Class L lands, BLM's guidelines allow for recreation that generally involves low to moderate user densities. Recreational activities can include backpacking; camping at primitive, unimproved sites; hiking; horseback riding; rock hounding; nature study; rock climbing; and non-competitive vehicle touring and events on approved routes of travel. Any organized event requires a permit specifying the conditions of use, which could include the definition of the approved routes and prohibitions, such as no pit, start, finish, or spectator areas.

Within Class M lands, BLM's guidelines allow for recreation that may involve moderate to high user densities. Recreational activities can include those permitted for Class L lands. Competitive events involving motorized vehicles are limited to existing routes of travel and must be approved by the authorized officer. All competitive events involving 50 or more vehicles require permits. On both Class L and M lands, trails are open for non-vehicle use; new trails for non-motorized access may be allowed.

Within Class I lands, BLM's guidelines allow for recreation that generally involve high user densities. Recreational activities can include those permitted for Class M lands. In addition, motorized-vehicle play is allowed in areas designated "open." All aspects of competitive events will be permitted except where specific mitigations are stipulated by the authorized officer.

Within Class C lands, BLM's guidelines allow for recreation that involve no to low user densities. Formally designated wilderness areas and areas that have been recommended as being suitable for wilderness designation are managed under this class. Congress designated wilderness areas across large portions of the CDCA in 1994 with the California Desert Protection Act; these Congressional designations supersede the multiple-use class boundaries assigned by BLM in 1980 when the CDCA Plan was finalized. Recreational activities can include backpacking; camping at primitive, unimproved sites; hiking; horseback riding; rock hounding; nature study; rock climbing; and other non-motorized/non-mechanized modes of recreation.

Guidelines Specifically Applicable to the ISDRA regarding Recreation and Motorized Use. Because of the unique geography of sand dunes in which routes of travel cannot be readily delineated, the CDCA Plan made special provisions for these areas. In the Imperial Sand Dunes,

Class C lands were designated closed to OHV use, whereas Class L and I lands were designated open to OHV use. The Class M lands within the ISDRA planning area are outside the sand dune area in the existing CDCA Plan. The proposed ISDRA Plan would change the multiple-use class boundaries within the planning area, as discussed below.

The multiple-use class guidelines as proposed in the ISDRA Plan are as follows:

Lands managed in Class C - North Algodones Dunes Wilderness Management Area. These lands are managed as semi-primitive, non-motorized recreational settings, have low visitation, and generally have no facilities. Recreation activities in the North Algodones Dunes Wilderness Management Area include hiking, backpacking, camping, horseback riding, nature study, and wildlife viewing.

Lands managed in Class L - Mammoth Wash Management Area and Adaptive Management Area (AMA). (*The name of the Management Area is the Adaptive Management Area. This term is not to be confused with the term adaptive management used throughout this document which is focused on specifically managing for the species throughout the entire dunes system.*) These lands are managed as semi-primitive, motorized recreational settings and include low to moderate visitation and generally a minimum of facilities. Recreation activities in these areas include camping, non-intensive OHV recreational use and play, hiking, nature study, and wildlife viewing. OHV use in these areas is focused more on family-oriented touring and exploring rather than intensive free play.

Lands managed in Class M - Dune Buggy Flats, Ogilby, and Glamis Management Areas. These management areas are managed as roaded natural recreational settings and include moderate to high visitation and generally a moderate level of facilities to accommodate the use. Recreational activities in these areas include camping and OHV touring and free play. In the ISDRA, these areas are characterized by large group camping areas that are considered a group base for further exploring and free play away from the camping area. A moderate to high level of management presence is offered in these areas to provide visitor services and resource protection.

Lands managed in Class I - Gecko and Buttercup Management Areas. These management areas are managed as rural recreational settings and include high, intensive visitation, with a high commitment to facility management and management services. In these settings, large groups meet and recreate in an intensive manner. Recreational activities in these areas include camping, OHV free play, and large group gatherings. A high level of management presence is offered to provide for visitor safety, emergency services, general visitor services, and resource protection.

Special Management Areas

The third major management tool that is used for planning and management purposes in the CDCA Plan involves the designation of special management areas, such as areas of critical environmental concern or other special areas. Other areas that possess rare, unique, or unusual

qualities of scientific, educational, cultural, or recreational significance may be designated as research natural areas, outstanding natural areas, other natural areas, national natural landmarks, national historical landmarks, national register of historic places, historic American engineering record, national scenic trails, national historic trails, man and biosphere reserves, and recreation lands. The Algodones Dunes National Natural Landmark is within the action area. The boundaries of this national natural landmark correspond approximately to the boundaries of the North Algodones Dunes Wilderness Management Area.

After an area has been formally designated as an area of critical environmental concern or other special area, a site-specific activity plan is prepared. Activity plans vary in size and complexity depending on the nature of the resources and uses within the area. Activity plans clearly identify the ongoing management objectives for the area of critical environmental concern. The activity plan also includes a description of types of future uses, activities, or management practices considered compatible with the purposes of the area and a description of any existing incompatible uses, activities, or practices within the area. The plan also provides a schedule for implementing management goals. Plans are prepared by interdisciplinary teams that consider all of the resources and uses present. Plans are subject to public review and environmental analysis. Adjacent land owners are consulted when areas of critical environmental concern and their management may conflict with adjacent owners' land uses and requirements.

Management prescriptions for areas of critical environmental concern may override the multiple-use class guidelines for the local area. BLM monitors existing conditions within an area of critical environmental concern to ensure that resource degradation is not occurring. Monitoring data is used to guide corrective actions that may be necessary.

ISDRA RAMP

The CDCA Plan provides a general prescription for management. The purpose of the ISDRA RAMP is to provide more specific management guidelines that pertain to the ISDRA, as an amendment to the CDCA Plan. The ISDRA was designated first by a management plan adopted in 1972. A prior RAMP was adopted in 1987 that included prescriptions for recreation, safety, resource protection, outreach, facility development, concessions, and land tenure adjustment. The proposed RAMP would replace the 1987 RAMP and would guide management of the Algodones Dunes for 10 to 15 years. The RAMP would be revised in this time period unless monitoring data or new information necessitates earlier amendment or revision. The following paragraphs summarize the proposed action; for more details, please refer to the source documents listed above and cited herein.

BLM proposes to manage the ISDRA under prescriptions described in the CDCA Plan, as amended by the proposed RAMP. The ISDRA would be managed with the best available scientific data. Special use permits that are covered in this biological opinion include: (1) permits authorizing vendors to operate within the ISDRA (as defined in the RAMP); (2) filming permits; (3) permits authorizing OHV events (providing these events are of no more impact than

the level of impact otherwise analyzed); (4) maintenance of existing wildlife guzzlers; (5) monitoring (by BLM and others) of wildlife and plants; (6) scientific collection of seeds and plants (other than Peirson's milk-vetch); (7) scientific collection of wildlife species other than desert tortoise, including insects and lizards and the mark and recapture of wildlife species (other than desert tortoise) for monitoring and research purposes; (8) hunting with appropriate permit and license from BLM and the California Department of Fish and Game (CDFG); and (9) permits authorizing non-OHV events, including hiking, backpacking, and trash pickup (providing these events are of no more impact than the level of impact otherwise analyzed).

Items not considered part of the proposed action include existing plans of operation for mining activities and ongoing activities and/or facilities that are authorized under existing special use permits (excluding those activities listed above). These activities involve permittees and effects to listed or proposed species that need to be addressed on a case-by-case basis. Any approval, permitting, administration, or funding of new or amended activities that may affect listed or proposed species must be addressed through future consultation.

The proposed RAMP divides the ISDRA into eight management areas and BLM would manage recreation activities in each unit based on the "Recreation Opportunity Spectrum" (ROS) classification system (see Appendix A). Under this system, each management area would have a "desired future condition" that might be achieved by implementation of identified management actions. Each management area is also classified by a Multiple Use Class (MUC). Some existing rights-of-way are associated with existing projects; others are corridors in which future projects may be developed. Such future projects will require separate section 7 consultation.

Under the proposed RAMP, BLM would manage approximately 29,067 acres in the Rural ROS class. Management of these lands would entail development of facilities, like campgrounds, overlooks, parking lots, and camping pads, along Interstate 8 and Gecko Road. According to BLM, substantially modified environment would characterize areas designated as rural areas and interactions between users would often be moderate to high. Resources would be modified to enhance recreation activities and a considerable number of facilities would be designed for use by a large number of people. Facilities for intensified motorized use and parking would be available.

BLM would manage approximately 62,409 acres primarily along State Route 78, the railroad, Interstate 8, and the New Coachella Canal in the Roaded Natural ROS class. Facilities would be designed and constructed to accommodate conventional motorized use. BLM's management objective is to provide a natural appearing environment. According to this land use classification, resource modification would be evident but in harmony with the natural environment. Interaction between users would be low to moderate.

BLM would manage approximately 41,394 acres primarily in Mammoth Wash Management Area and the AMA in the Semi-primitive Motorized ROS class. A predominantly natural appearing environment would characterize these areas, however, semi-primitive motorized

vehicle use would be allowed. The resource integrity of the area would be important to the visitor experience. Concentration of visitors using these areas would be low.

BLM proposes to retain the existing Northern Algodones Dunes Wilderness Management Area (26,202 acres) and motorized use would continue to be prohibited (Semi-primitive Non-motorized ROS class). A predominately natural or natural appearing environment would characterize the area. Interaction between users would be low, but there would often be evidence of other users.

Recreation Use and Facilities: A complete description of the level of OHV use and facilities proposed by BLM is available in the proposed RAMP. Although camping is allowed throughout all of the management areas except for the AMA, BLM used a formula to estimate the amount of each management area that was campable (e.g., accessibility, slope, presence of hard sand). The estimate of area that would accommodate camping in each management area was then used to calculate the desired recreational carrying capacity. The table below provides a synopsis of management actions proposed for each management area.

Table 1: Synopsis of Management Planned Under the CDCA, as Amended by the RAMP

Management Area	MUCs[b]	ROS Class	Proposed Management Actions	Species[a]
Mammoth Wash 8,105 acres 1,497 acres camping[c] 808 vehicles/day[c] 2,829 campers/day[c]	L	Semi-primitive motorized	- Biological monitoring - Maintain guzzlers- Allow filming permits - New camping area- Water roads for dust control as required by Imperial Air Pollution Control District (APCD)	DT, PMV, PMVCH
North Algodones Dunes Wilderness 26,202 acres 26,202 acres dispersed camping[c] 0 vehicles/day [c] 74 campers/day[c]	C	Semi-primitive non-motorized	- Biological monitoring - Maintain guzzlers- Maintain signage - Maintain Watchable Wildlife site- Allow filming permits - Boundary signing - Update kiosk at watchable wildlife site	DT, PMV, PMVCH
Dune Buggy Flats 16,658 acres 1,237 acres camping[c] 2,227 vehicles/day[c] 7,793 campers/day[c]	M	Roaded natural	- Biological monitoring - Construct pit toilets - Grade entrance road regularly - Allow filming permits - Water roads for dust control as required by APCD - Small portable ranger station -Delineate short-term vendor area	PMV

Gecko **21,225 acres** 674 acres camping[c] 8,057 vehicles/day[c] 28,199 campers/day[c]	I	Rural	- Biological monitoring - No camping N. of 78 - Construct 15 acres new campsites (70.5 current acres campsites) - B/t canals S. 78 - use for overflow camping - Volunteer/non-profit cleanup activities - Pilot reservation program - Close Osborne to camping - Construct Osborne ranger station - Construct Osborne law enforcement facility - Construct housing/parking at current ranger station - Install Osborne educational kiosks - Install kiosks Gecko Road, Gecko and Roadrunner Campgrounds - Allow filming permits - Water and sweep roads for dust control as required by Imperial APCD - Delineate long-term vendor area - Install above ground fuel tanks with ranger station	PMV
Glamis **24,041 acres** 2,014 acres camping[c] 3,625 vehicles/day[c] 12,688 campers/day[c]	M	Roaded natural	- Biological monitoring - Construct pit toilets in Glamis flats, washes - Allow camping east of Glamis and RR tracks - Grade Wash Road regularly - Allow filming permits - Water roads for dust control as required by Imperial APCD - Delineate short-term vendor area	DT, PMV
Adaptive **33,289 acres** 0 acres camping[c] 525 vehicles/day[c] 0 campers/day[c]	L	Semi-primitive motorized	- Biological monitoring - Research studies - Sign boundaries - Develop permit program - Allow filming permits - Water roads for dust control as required by APCD	DT, PMV
Ogilby **21,710 acres** 1,539 acres camping[c] 2,770 vehicles/day[c] 9,696 campers/day[c]	M	Roaded natural	- Biological monitoring - Allow filming permits - Water roads for dust control as required by APCD	DT, PMV, PMVCH

Buttercup **7,842 acres** 432 acres camping[c] 5,476 vehicles/day[c] 19,165 campers/day[c]	I	Rural	- Biological monitoring - Reservation system for camping - Ranger station-interpretive area adjacent to Greys Well Road - Repair fencing around Plank Road Arch site and upgrade all exhibits - Designate bus parking - Delineate short-term vendor area - Allow filming permits -Water roads for dust control as required by APCD	PMV

[a] DT=desert tortoise, PMV=Peirson's milk-vetch, PMVCH=Peirson's milk-vetch critical habitat

[b] Under the CDCA, 26 percent of the ISDRA is zoned as "limited use" (Class L), 18 percent is zoned as "intensive use" (Class I), and 16 percent is zoned as "controlled use" (Class C). Roughly 39 percent of the Dunes are zoned as "moderate use" (Class M).

[c] Estimates made by BLM in RAMP revision based on "ROS" system. These figures constitute target use levels.

By classifying the management areas as listed above, BLM is proposing to reopen approximately 49,000 acres (4 Interim Closure Areas) to OHV use, and one temporary camping closure to camping. Interim closure areas were instituted pending Record of Decision signature on a proposed RAMP.

Classification of the management areas, as proposed, would allow for approximately 33,595 acres available for overnight camping, with approximately 4,272 camp sites. Using the management goal of an average of 6 vehicles with 3.5 people per vehicle using each camp site, 22,963 vehicles carrying 80,444 campers may be present on a given night under the proposed RAMP.

BLM proposes to manage the Algodones Dunes using the ROS classes as outlined in Appendix A and identified in Table 1 to meet the needs of visitors and resource management. If the number of visitors exceeds the designated carrying capacity for a given management area by 15 percent or more of the visitor season (October 1 to May 31), then BLM would consider actions to limit access to the recreation area. If the designated carrying capacity for a management area is exceeded over 15 percent of the time (37 days of the season), management would: (1) initiate a resource condition survey and social survey; (2) provide information/ education to promote off peak season recreation; and (3) evaluate the feasibility of an expanded reservation system, differential fees, and enhanced information/education. If the designated carrying capacity for a management area is exceeded over 20 percent of the time (49 days) during a 1-year season, then management would: (1) initiate a resource survey and social survey; (2) provide information/education to promote off peak season recreating; (3) expand the reservation

system to 50 percent of available campsites; (4) initiate differential fees; (5) enhance information/education; (6) limit the number of users in the ISDRA; and (7) conduct a study to determine the feasibility of providing additional camping opportunities at the ISDRA.

BLM proposes to develop or construct additional camping areas in management areas designated as Rural under the ROS system to compensate for camping opportunities lost to camping closures instituted for resource conservation.

Monitoring and Adaptive Management of Recreational Use

The proposed RAMP identifies a monitoring plan for several sensitive species and ecological communities located within the ISDRA.

The monitoring plan includes: (1) a commitment to reinitiate ESA section 7 consultation under the Act with the Service, as appropriate, so that scientific information collected can be fully integrated into the section 7(a)(2) analysis of the action; (2) dune-wide monitoring of Peirson's milk-vetch; (3) dune-wide monitoring and calibration of OHV use patterns; (4) two experimental studies on the effects of OHVs on Peirson's milk-vetch; (5) examination for correlation between OHV-use patterns and Peirson's milk-vetch population levels; (6) modeling of Peirson's milk-vetch populations under various management scenarios; (7) an implementation schedule; and (8) viability study of the seed bank. The monitoring plan also includes monitoring of dune vegetation, desert tortoise populations, Colorado Desert fringe-toed lizard populations, flat-tailed horned lizard populations, avian populations, and microphyll woodlands. BLM has also agreed to monitor any changes to the primary constituent elements established through the critical habitat designation process.

BLM proposes that the Service assist in development of monitoring programs and research studies involving cooperation of other researchers in study design. Study designs would be developed in cooperation with the Service the year prior to implementation to ensure adequate review and exchange of ideas and information.

In addition, BLM proposed in a memo dated September 5, 2003, to evaluate management outcomes and make adjustments in management objectives and planned actions based on new data collected through monitoring. This evaluation and adjustment process would be done annually in coordination with the Service. To improve management effectiveness, BLM proposes to (1) use the results of monitoring of listed species, as well as highly visible indicator species; (2) measure health of ecological communities ("habitat") in the Algodones Dunes; (3) maintain viable populations of all native species in the ISDRA, and to achieve this goal through the use of management triggers, amendments, and/or revisions; (4) maintain rainfall records for the management areas; and (5) maintain OHV-use records for the management areas. BLM plans to conduct an annual review of plan implementation, and determine whether it is meeting stated

goals and objectives. The annual review would consider all monitoring data, the collective experience of BLM personnel, and other available information. The review findings would be provided to the Service for review and comment.

An annual review process has been created by the agencies to ensure a no jeopardy/no adverse modification standard will be maintained throughout the Imperial Sand Dunes. The process includes: 1) an analysis of the data collected; 2) an identification of variables that may have affected the data (e.g., rainfall, timing of rainfall, timing of data collected, temperatures, OHV use); 3) an identification of any areas of concern within the ISDRA based on the data or trends analysis; 4) an analysis of impacts to the older plants, the seedlings and the seed bank; and 5) other relevant factors. If Peirson's milk-vetch distribution or abundance significantly declines, BLM would take immediate measures to remedy the situation. "Significantly decline" is defined as declining to the mutually agreed upon threshold past which additional actions may be deemed necessary to continue to support the conservation of the species. In 2004-2005, the threshold will be defined as 50 percent of the reproductive plants as measured in a comparable rainfall year. The 50 percent level was selected as an appropriate and measurable amount that would allow for detection of change, yet, not negatively affect the species ability to recover and survive. If the population declines below the determined threshold, proactive measures will occur to protect the plant and its associated critical habitat. These measures may include, but are not limited to: 1) education of OHV users regarding avoiding the plant; 2) implementation of permitting or other method to minimize use in sensitive areas; 3) self-policing by OHV users to keep users out of sensitive areas; 4) partial closure of sensitive areas; and 5) complete closure of areas. If the agencies are not able to come to agreement, BLM will ensure the protection of the species and associated critical habitat under its FLPMA authorities by closing the relevant portions of the management areas in question. These areas will remain closed until a reinitiated consultation is completed, and the requirements of 43 CFR § 8341.2 are met.

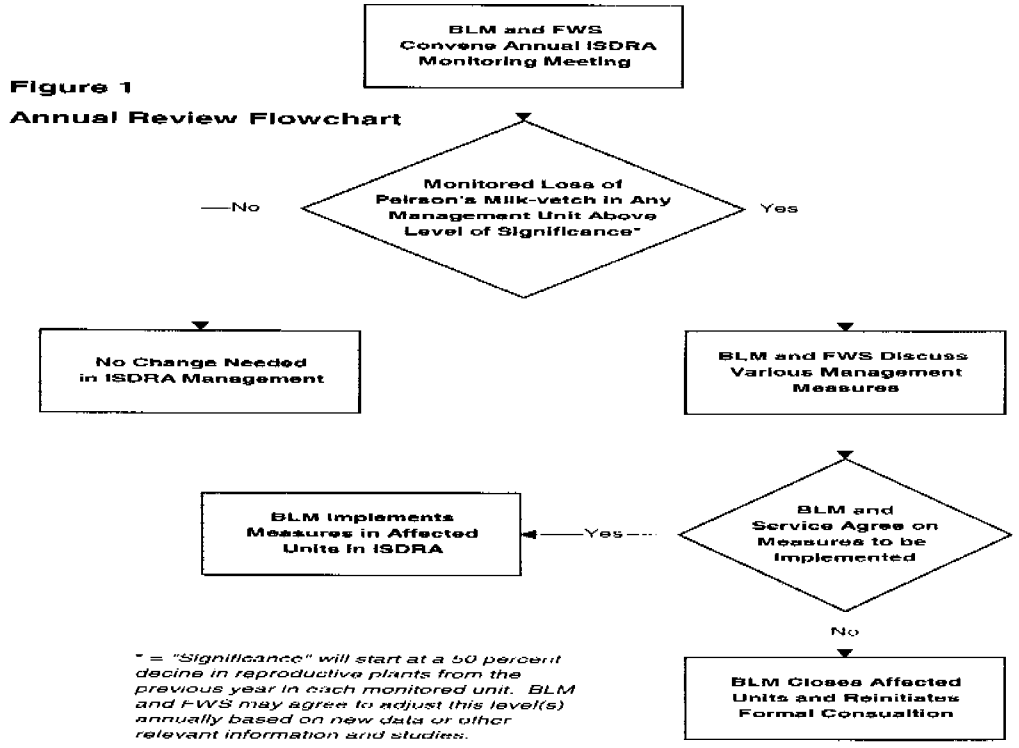

Figure 1
Annual Review Flowchart

BLM has reiterated its commitment to monitoring and research related to Peirson's milk-vetch and human-related impacts, and has committed to fund these efforts in the amount needed for them to be scientifically credible. To strengthen inference from the monitoring program, Peirson's milk-vetch data were collected in winter/spring 2004, which is considered a normal rainfall year. Population estimates derived from this data will be used as the starting point against which to measure future population changes. The Service and BLM plan to work together using best available scientific data to refine the baseline. Under the proposed action, 4 years of intensive data collection (which began in 2004) would occur. These data would be used to further develop population baseline values for each of the management areas. If Peirson's milk-vetch reproductive population levels in individual management areas fall to the agreed upon threshold (which beginning in 2004 is 50 percent of the baseline 2004 reproductive population level in a comparable rainfall year—this threshold level is subject to change based on the yearly analysis of monitoring data), or if the function and conservation role of any of the primary constituent elements of the critical habitat are impaired, BLM commits to take action to remedy the situation pursuant to the annual review process described on 20-22, as illustrated in Figure 1. BLM would not need to amend the RAMP to respond to this population decline pursuant to the

provisions of 43 CFR § 8341.2. If BLM desires to reopen the area, BLM would develop new management prescriptions for each area affected and reinitiate consultation with the Service prior to any reopening and would comply with 43 CFR § 8341.2 and any NEPA requirements.

Specifically in the AMA, BLM would manage the area based on the use of a permit system to increase or decrease the amount of use in the area. Under the RAMP, BLM would limit access to the AMA to 525 vehicles per day the first year, altering the number of vehicles allowed in subsequent years depending on the resulting impact on visitor use and biological needs.

STATUS OF THE SPECIES

Peirson's milk-vetch

Peirson's milk-vetch was listed as an endangered species by the State of California in 1979. On May 8, 1992, the Service published a rule proposing endangered or threatened status for 7 desert milk-vetch taxa, including Peirson's milk-vetch (57 FR 19844). The Service listed this species as threatened on October 6, 1998, (63 FR 53596) due to threats of increasing habitat loss from OHV use and associated recreational development, destruction of plants, and lack of protection afforded the plant under State law. At the time of listing, the Service estimated that 75 to 80 percent of Peirson's milk-vetch habitat in the Algodones Dunes was subject to OHV use.

Peirson's milk-vetch is a stout, short-lived perennial member of the legume family (Fabaceae). Stems are gray-green in color, upright, and reach heights of 20 to 70 centimeters (8-27 inches). Leaves are pubescent, gray-green, long, and slender, with paired leaflets along each edge. The flowers are dull purple, arranged in 10- to 17-flowered racemes. The pods are large and inflated, 2 to 3.5 centimeters (0.8-1.4 inches) long, and contain 4.5-5.5 mm (0.2 inches) black flat seeds--the largest seeds of any *Astragalus* in North America. The taproot is extremely long and penetrates deeply before lateral rootlets emerge (Barneby 1964). The root crown is often exposed due to moving sand in the dunes.

Peirson's milk-vetch seeds require no pre-germination treatment to induce germination, but show increased germination success when scarified (Romspert and Burk 1979). Seeds germinated best at lower and intermediate temperatures (15-25°C) in laboratory studies (Romspert and Burk 1979), and as might be expected, germinate in the cooler fall and winter months.

Peirson's milk-vetch seedlings mature rapidly, and although perennial, some plants may flower and produce seed within months of germination (Barneby 1964, Phillips *et al.* 2001). The relative contribution of first-year plants of Peirson's milk-vetch to the seed bank and survival of the taxon is not fully understood. The available data suggest that older age classes produce substantially more seeds than first year plants, and that therefore the older persisting plants are more important for reproductive success. Romspert and Burk (1979) noted that older plants were the primary seed producers, and plants that become reproductive in the first season do not contribute much to the seed bank. This observation corresponds to conclusions reached by

Pavlik and Barbour (1986) on a related *Astragalus* species, although Phillips and Kennedy (2002) concluded that there was a "substantial infusion of seeds into the sand as a result of the 2000 germination event and favorable weather conditions in the dune system in the spring and summer 2001." Phillips and Kennedy, however, also reported that older plants produced a mean of 171 fruits per plant, compared to an estimated 5 fruits per younger plant in their earlier spring survey. Survival into the following wet fall/winter period was low in studies conducted by Rompsert and Burk (1979), and Phillips and Kennedy (2002) reported 26 percent survival of the 2000-01 cohorts through the summer of 2001.

Rompsert and Burk (1979) noted significant presence of the bruchid seed beetles, which they concluded contributes to a high mortality of seeds and a reduced seed crop for the species. Peirson's milk-vetch persistence likely relies on ecological relationships within the larger psammophytic plant and wildlife communities as evidenced by recent observation (M. Porter, Rancho Santa Botanical Garden, in lit. 2004) that the white-faced digger bee (*Habropoda* spp.) is apparently the primary pollinator of the plant. If habitat requirements for the bee are not maintained, Peirson's milk-vetch pollination and seed-set rates may decline, potentially reducing the seed bank and ultimately Peirson's milk-vetch population.

Peirson's milk-vetch grows on slopes and hollows of windblown dunes in the southwestern Sonoran Desert. The species is frequently associated with other psammophytic (sand-loving) plants in the psammophytic scrub plant community. The only confirmed extant population of Peirson's milk-vetch in the United States is distributed in what can be considered one extensive population of scattered colonies spanning the length of the (Algodones) dune system (63 FR 53596). The plant occurs primarily in partially stabilized bowls that lie behind the primary, westernmost dunes. Most vegetation occurs in dunes of intermediate size in the western half of the area, and not in the high dunes in the eastern portion of the dune field (Phillips and Kennedy 2002). Approximately 108,658 acres of psammophytic scrub/active dune occurs within the ISDRA (BLM 2002), although recent studies conclude that mappable concentrations of plants were noted in less than 25 percent of the Algodones Dunes proper (Phillips and Kennedy 2002). Surveys conducted in the Borrego Valley, where the species was originally collected, have failed to detect Peirson's milk-vetch (BLM 2001) (Spolsky 1978). Another reported location, west of the Salton Sea, is unvouchered and cannot be confirmed. Peirson's milk-vetch has been apparently misidentified in the Yuma Dunes of Arizona (Phillips and Kennedy 2002). A specimen collected in the Gran Desierto of northwestern Sonora was confirmed as *A. m.* var. *peirsonii* by A. Phillips in 2001.

Based on our current understanding of the species' life history, sufficient rain in conjunction with wetter than average fall weather appears to trigger significant germination events. After germination, seedlings may be present throughout the Algodones Dunes, especially during above normal precipitation years. As discussed above, older plants likely produce more seeds than first-year plants. Plant numbers decrease in intervening drier years, as individuals die and are not replaced by new seedlings. The species likely depends on the production of seeds in the wetter years, and the persistence of seed producers and seeds in the dunes until appropriate conditions

for production and germination occur. Further research and modeling are necessary to better understand the dynamics of this system and how the species may be responding to natural and man-made disturbances within its range.

Based on our current understanding of the species' biology, the primary conservation needs include: (1) maintenance of the major occurrences of Peirson's milk-vetch to conserve connectivity and genetic diversity; (2) management of Peirson's milk-vetch habitat to prevent unnatural population declines; (3) collection of additional information concerning recreational use patterns and direct/indirect effects of OHV use on habitat suitability, and (4) a better understanding of seed bank dynamics and plant demography, and associated effects of OHV use.

The species' life history is characterized by germination during years with sufficient rainfall, followed by drier years of attrition and little germination (Phillips and Kennedy 2002). Persistence of the Peirson's milk-vetch likely relies largely on the extent and longevity of the seed bank during drier years and its subsequent replenishment by reproductive plants primarily during the wetter years. Therefore, the population requires survival of standing plants to reproduction, and sufficient recruitment of plants to reproductive age to maintain the seed bank over time, though how frequently plants need to reproduce over time is unknown. For Peirson's milk-vetch to persist, first-year plants must survive long enough to produce seed; reproductive plants must produce enough fertile seeds to replenish the seed bank; and the seed bank must be large enough to sustain impacts from numerous mortality factors, including OHV impacts, predation by bruchid beetles, surface exposure or deep burial that precludes germination, excessive scarification that allows the seed to desiccate, dispersal to unsuitable habitats, seed sterility, and loss of a seedling cohort from early onset of drought.

Peirson's milk-vetch critical habitat

The Service designated critical habitat for Peirson's milk-vetch (69 FR 47329) on August 4, 2004. According to the final rule,

> "the primary constituent elements of critical habitat for PMV (*Astragalus magdalenae* var. *peirsonii)* consist of intact, active sand dune systems (defined as sand areas that are subject to sand-moving winds that result in natural expanses of bowls, swales, and slopes and support the co-adapted psammophytic scrub plant and invertebrate communities) within the existing range of *Astragalus magdalenae* var. *peirsonii* that are characterized by: (A) Substrates of the Rositas soil series, specifically Rositas fine sand of sufficient depth to promote *Astragalus magdalenae* var. *peirsonii* and discourage creosote bush scrub; (B) Wind-formed slopes of less than 30 degrees, but generally less than 20 degrees; and (C) the associated co-adapted psammophytic scrub plant community (e.g., *Croton wigginsii, Eriogonum deserticola, Helianthus niveus* ssp.

> *tephrodes, Palafoxia arida* var. *gigantea, Pholisma sonorae*, and *Tiquilia plicata*) that supports the white-faced digger bee (*Habropoda* spp.) (the primary pollinator of *Astragalus magdalenae* var. *peirsonii*)." (69 FR 47329).

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR § 402.02. Instead, we have relied upon the statutory provisions of the ESA to complete the following analysis with respect to critical habitat.

Table 2. Approximate Areas in Acres (ac) and Hectares (ha) of Designated Critical Habitat for *Astragalus magdalenae* var. *peirsonii* by Land Ownership and Subunits

Unit	Federal	State	Private	Total
Subunit 1A	14,544 ac (5,886 ha)	550 ac (223 ha)	1,414 ac (572 ha)	16,509 ac (6,681 ha)
Subunit 1B	5,355 ac (2,167 ha)	0 ac (0 ha)	0 ac (0 ha)	5,355 ac (2,167 ha)
Total	19,899 ac (8,053 ha)	550 ac (223 ha)	1,414 ac (572 ha)	21,863 ac (8,848 ha)

Critical habitat for Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*) consists of one unit divided into two Subunits, 1A and 1B. Subunit 1A is located north of State Route 78 and encompasses portions of the Mammoth Wash and North Algodones Dunes Wilderness Management Areas within the ISDRA.

> "The majority of this critical habitat Subunit (1A) lies within the North Algodones Dunes Wilderness Area. The subunit receives the lowest level of human disturbance within the ISDRA because the North Algodones Dunes Wilderness Area is closed by BLM to recreational motorized vehicles." (69 FR 47329).

Additionally, low to moderate levels of vehicle use and fewer numbers of campers due to lack of facilities were observed in the northern reaches of Subunit 1A (Mammoth Wash Management Area) (Gavin Wright, in lit.). Subunit 1A is essential to the conservation of Peirson's milk-vetch because it retains the most natural and pristine features of the Algodones Dunes ecosystem and includes the best remaining example of a dune system undisturbed by intensive OHV recreation in the ISDRA (69 FR 47329).

Subunit 1B, located south of State Route 78 and north of Interstate 8, encompasses the Ogilby Management Area.

> "This subunit is essential to the conservation of [Peirson's milk-vetch] because it represents the largest, widest, and highest sand dune fields within the Algodones Dunes and supports high densities of [the plant]. The natural processes of dune movement that maintain the biological conditions necessary to support [Peirson's milk-vetch] are still retained." (69 FR 47329).

Desert tortoise

The desert tortoise is a large, herbivorous reptile found in portions of the California, Arizona, Nevada, and Utah deserts. This species also occurs in Sonora and Sinaloa, Mexico. In California, desert tortoise occurs primarily within the creosote, shadscale, and Joshua tree series of Mojave Desert scrub and the lower Colorado River Valley subdivision of Sonoran desert scrub. Optimal habitat has been characterized as creosote bush scrub in which precipitation ranges from 50 to 200 mm (2 to 8 inches), diversity of perennial plants is relatively high, and production of ephemerals is high (Luckenbach 1982, Turner and Brown 1982, Schamberger and Turner 1986). Soils must be friable enough for digging of burrows, but firm enough so that burrows do not collapse. In California, desert tortoises are typically associated with gravelly flats or sandy soils with some clay, but are occasionally found in windblown sand or in rocky terrain (Luckenbach 1982). Desert tortoises occur in the California desert from below sea level to an elevation of 2200 m (7,300 feet), but the most favorable habitat occurs at elevations of approximately 300 to 900 m (1,000 to 3,000 feet) (Luckenbach 1982, Schamberger and Turner 1986).

Desert tortoises are most active in California during the spring and early summer when annual plants are most common. Additional activity occurs during warmer fall months and occasionally after summer rain storms. Desert tortoises spend most of the remainder of the year in burrows, escaping the extreme conditions of the desert. Further information on the range, biology, and ecology of desert tortoise can be found in Burge (1978), Burge and Bradley (1976), Hovik and Hardenbrook (1989), Luckenbach (1982), Weinstein *et al.* (1987), and Service (1994b).

Food resources for desert tortoises are dependent on the availability and nutritional quality of annual and perennial vegetation, which is greatly influenced by climatic factors, such as the timing and amount of rainfall, temperatures, and wind (Beatley 1969, 1974, Congdon 1989, Karasov 1989, Polis 1991 in Avery 1998). In the Mojave Desert, these climatic factors are typically highly variable; this variability can limit desert tortoise's food resources.

Desert tortoises will eat many species of plants. However, at any time, most of their diet often consists of a few species (Nagy and Medica 1986, Jennings 1993 in Avery 1998). Additionally, their preferences can change during the course of a season (Avery 1998) and over several seasons (Esque 1994, Avery 1998). Possible reasons for desert tortoises to alter their preferences may include changes in nutrient concentrations in plant species, the availability of plants, and the nutrient requirements of individual animals (Avery 1998). In Avery's (1998) study in the Ivanpah Valley, desert tortoises consumed primarily green annual plants in spring; cacti and

herbaceous perennials were eaten once the winter annuals began to disappear. Medica *et al.* (1982 in Avery 1998) found that desert tortoises ate increased amounts of green perennial grass when winter annuals were sparse or unavailable; Avery (1998) found that desert tortoises rarely ate perennial grasses.

Desert tortoises can produce from one to three clutches of eggs per year. On rare occasions, clutches can contain up to 15 eggs; most clutches contain 3 to 7 eggs. Multi-decade studies of the Blanding's turtle (*Emydoidea blandingii*), which, like desert tortoise, is long-lived and matures late, indicate that approximately 70 percent of the young animals must survive each year until they reach adult size; after this time, annual survivorship exceeds 90 percent (Congdon *et al.* 1993). Research has indicated that 50 to 60 percent of young desert tortoises typically survive from year to year, even in the first and most vulnerable year of life. We do not have sufficient information on the demography of desert tortoise to determine whether this rate is sufficient to maintain viable populations; however, it does indicate that maintaining favorable habitat conditions for small desert tortoises is crucial for the continued viability of the species.

Desert tortoises typically hatch from late August through early October. At the time of hatching, desert tortoise has a substantial yolk sac; the yolk can sustain them through the fall and winter months until forage is available in the late winter or early spring. However, neonates will eat if food is available to them at the time of hatching; when food is available, they can reduce their reliance on the yolk sac to conserve this source of nutrition. Neonate desert tortoises use abandoned rodent burrows for daily and winter shelter, which are often shallowly excavated and run parallel to the surface of the ground.

Neonate desert tortoises emerge from their winter burrows as early as late January to take advantage of freshly germinating annual plants; if appropriate temperatures and rainfall are present, at least some plants will continue to germinate later in the spring. Freshly germinating plants and plant species that remain small throughout their phenological development are important to neonate desert tortoises because their size prohibits access to taller plants. As plants grow taller during the spring, some species become inaccessible to small desert tortoises.

Neonate and juvenile desert tortoises require approximately 12 to 16 percent protein content in their diet for proper growth. Desert tortoises, both juveniles and adults, seem to selectively forage for particular species of plants with favorable ratios of water, nitrogen (protein), and potassium. The potassium excretion potential model (Oftedal 2001) predicts that, at favorable ratios, the water and nitrogen allow desert tortoises to excrete high concentrations of potentially toxic potassium, which is abundant in many desert plants. Oftedal (2001) also reports that variation in rainfall and temperatures cause the potassium excretion potential index to change annually and during the course of a plant's growing season. Therefore, the changing nutritive quality of plants, combined with their increase in size, further limits the forage available to small desert tortoises to sustain their survival and growth.

In summary, the ecological requirements and behavior of neonate and juvenile desert tortoises are substantially different than those of subadults and adults. Smaller desert tortoises use abandoned rodent burrows, which are typically more fragile than the larger ones constructed by adults. They are active earlier in the season. Finally, small desert tortoises rely on smaller annual plants with greater protein content to be able to gain access to food and to grow.

The Mojave population of desert tortoise includes those animals living north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, southwestern Utah, and in the Colorado Desert in California. On August 4, 1989, the Service published an emergency rule listing the Mojave population of desert tortoise as endangered (54 FR 32326). In its final rule dated April 2, 1990, the Service determined the Mojave population of desert tortoise to be threatened (55 FR 12178)

The recovery plan for desert tortoise is the basis and key strategy for recovery and delisting of desert tortoise. The plan divides the range of desert tortoise into six distinct population segments or recovery units and recommends the establishment of 14 desert wildlife management areas throughout the recovery units. Within each desert wildlife management area, the recovery plan recommends implementation of reserve level protection of desert tortoise populations and habitat, while maintaining and protecting other sensitive species and ecosystem functions. The design of desert wildlife management areas should follow accepted concepts of reserve design. As part of the actions needed to accomplish recovery, land management within all desert wildlife management areas should restrict human activities that negatively affect desert tortoises (Service 1994b).

Four recovery units for desert tortoise occur in the CDCA. The Western Mojave Recovery Unit extends from approximately Olancha and the northern Panamint Valley in the north; south to the middle of Joshua Tree National Park; it also extends from the Sierra Nevada and Tehachapi Mountains in the west; east to Death Valley and the eastern side of Joshua Tree National Park. The Eastern Mojave Recovery Unit lies east of Death Valley and extends from the Nevada border in the north south to Interstate 40; BLM considers the small portion of the Northeastern Mojave Recovery Unit that extends into Ivanpah Valley as part of the Eastern Mojave Recovery Unit for its planning purposes. The Northern Colorado Recovery Unit extends from Interstate 40 south, almost to Interstate 10 and from the eastern portions of Joshua Tree National Park east to the Colorado River. The Eastern Colorado Recovery Unit extends from just north of Interstate 10 south to the Mexico border near Yuma, Arizona; the Salton Sink and Imperial Valley form the western edge of this recovery unit, which extends east to the Colorado River.

The following descriptions of the recovery units in California are from the recovery plan for desert tortoise (Service 1994b) and BLM's biological assessment (BLM 2001). The Western Mojave Recovery Unit is exceptionally heterogeneous and large with distinct climatic and vegetation characteristics in its western, central, and southern regions. The most pronounced difference between this and other recovery units is in timing of rainfall and the resulting vegetation. Most rainfall in the Western Mojave Recovery Unit occurs in fall and winter and

produces winter annuals. Desert tortoises are active above ground primarily in the spring so they can consume annual plants that germinated in response to winter rains. In the western Mojave Desert, desert tortoises occur primarily in valleys and on bajadas and rolling hills in saltbush, creosote bush, and scrub steppe communities.

The region covered by the Eastern Mojave Recovery Unit receives both winter and summer rains. In response to the bimodal pattern of rainfall, production of annual plants occurs in spring and in late summer and early autumn; desert tortoises are often active during both periods if annual plants and perennial grasses are present.

Desert tortoises in the Northern Colorado Recovery Unit also experience two active periods because of winter and summer rains. They occasionally inhabit the broad, well-developed washes that are found in this region. The climate is somewhat warmer than in the other recovery units, with only 2 to 12 freezing days per year.

Desert tortoises in the Eastern Colorado Recovery Unit are active longer than elsewhere in California because of the mild winters and substantial summer precipitation. They are found in well-developed washes, desert pavements, piedmonts, and rocky slopes characterized by relatively species-rich succulent scrub, creosote bush scrub, and blue palo verde-ironwood-smoke tree communities; these communities tend to support a higher degree of plant diversity than those in the Western Mojave Recovery Unit.

During the summers of 1998 and 1999, biologists associated with the West Mojave Coordinated Management Plan surveyed over 1,200 transects over a large area of the western Mojave Desert. These transects failed to detect sign of desert tortoises in areas where desert tortoises were previously considered to be common. Although these data have not been fully analyzed and compared with previously existing information, they strongly suggest that the number of desert tortoises has declined substantially over large areas of the western Mojave Desert.

Between 1971 and 1980, 27 plots were established in California to study desert tortoise; 15 of these plots were used by BLM to monitor desert tortoises on a long-term basis (Berry 1999). Generally, the plots were visited at roughly 4-year intervals to determine the numbers of desert tortoises they supported. Desert tortoises found on these plots during the spring surveys were registered; that is, they were marked so they could be identified individually during subsequent surveys.

At the Chemehuevi Valley and Wash plot, 257 and 235 desert tortoises were registered in 1988 and 1992, respectively (Berry 1999). During the 1999 spring survey, only 38 live desert tortoises were found. The shell and skeletal remains of at least 327 desert tortoises were collected; most, if not all, of these animals died between 1992 and 1999. The frequency of shell lesions and nutritional deficiencies appeared to be increasing and may be related to the mortalities. The Chemehuevi Valley and Wash plot is located within the Northern Colorado Recovery Unit.

At the Goffs plot, 296, 220, and 249 desert tortoises were registered in 1980, 1990, and 1994, respectively (Berry 2000). In 2000, only 30 live desert tortoises were found. The shell and skeletal remains of approximately 393 desert tortoises were collected; most of these animals died between 1994 and 2000. Most desert tortoises exhibited signs of shell lesions; three salvaged desert tortoises showed abnormalities in the liver and other organs and signs of shell lesions. None of the three salvaged desert tortoises tested positive for the upper respiratory tract disease. However, this small sample size does allow conclusions about the population as a whole. The Goffs plot is located within the Eastern Mojave Recovery Unit.

Large numbers of shells have also been observed in Ward Valley (Northern Colorado Recovery Unit, Chemehuevi Critical Habitat Unit) during the 1990s. During the 1980s, declines were observed on the Chuckwalla Bench and within the Chocolate Mountains Aerial Gunnery Range, both of which are located in the Eastern Colorado Recovery Unit (Berry *et al.* 2001).

Desert tortoise was listed in response to loss and degradation of habitat caused by numerous human activities including urbanization, agricultural development, military training, recreational use, mining, and livestock grazing. The loss of individual desert tortoises to increased predation by common ravens, collection by humans for pets or consumption, collisions with vehicles on paved and unpaved roads, and mortality resulting from diseases also contributed to the Service's listing of this species.

Desert tortoise critical habitat

Desert tortoise was emergency listed as endangered on August 20, 1980, listed as threatened in 1991. The Service designated critical habitat for desert tortoise in portions of California, Nevada, Arizona, and Utah in a final rule, published February 8, 1994 (59 FR 5820). No designated desert tortoise critical habitat occurs within the boundaries of the ISDRA. As a result desert tortoise critical habitat will not be discussed further in this document.

ENVIRONMENTAL BASELINE

An action area includes all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involving the action. For the purpose of this biological opinion, the action area is ISDRA and the area of private land that hosts Peirson's milk-vetch adjacent to the ISDRA. The closest Desert Wildlife Management Area (DWMA) proposed in the Desert Tortoise Recovery Plan is 6 miles away from the ISDRA.

The ISDRA includes the scrub and active dunes in the Algodones Dunes (103,091 acres), as well as creosote scrub (21,434 acres total) to the east and west and microphyll woodland (34,547 acres) east of the dune system. Despite the presence psammophytic scrub, the Algodones Dunes, like all active sand dunes, require 1) a source of sand, 2) winds strong enough to move the sand,

and 3) a lack of stabilizing vegetation (Muhs and Been 2004). The Algodones Dunes stand in sharp contrast to the stabilized Aeolian deposits of the East Mesa, which Muhs and others (1995) concluded may be the result of human-caused rises in ground water in the Imperial Valley.

The Algodones Dunes are one of the driest and hottest regions in the United States. Romspert and Burk (1979) reported average yearly precipitation between 1941 and 1970 was 67.8 mm (2.67 inches) at Yuma, Arizona, about 24 miles east of the Algodones Dunes. Although Romspert and Burk (1979) did not indicate which Yuma weather station their data came from, they likely used the Yuma Citrus Station, which is the only Yuma station with data as far back as 1941. As of 2004, the period of record yearly average at the Yuma Citrus Station was 88.6 mm (3.49 inches). Because weather stations to the east of the Algodones Dunes receive more precipitation than those west of the Algodones Dunes, Willoughby (2004) calculated an average precipitation based on the mean of the weather stations east and west of the Algodones Dunes. Period of record average annual precipitation for those stations west of the Algodones Dunes is 2.58 inches; for those stations east of the Algodones Dunes, it is 3.34 inches.

An accumulation of wind-blown sand derived from the former beach deposits or lake bed of the Pleistocene Lake Cahuilla (Muhs et al. 1995), the Algodones Dunes support numerous specialized plants and animals, some of which are endemic. The area has been used recreationally for decades, and currently receives more OHV use than any other dune system in California (BLM 2002). The ecosystem has been subject to effects from recreational OHVs, flood control, highways, filming, power lines, communications projects, hiking, camping, mining, Border Patrol, and illegal immigrant travel for many years (BLM 2002). Visitor levels to this dune system tripled between 1985 and 2001 (BLM 2002).

The ISDRA is somewhat isolated from the surrounding desert habitat, bordered to the west by the Coachella Canal, and to the east by Wash Road, Ted Kipf Road (250 acres), railroad tracks (339 acres), and flood control dikes (500 acres). The canal, roads, dikes, and railroad tracks may limit wildlife movement into and out of the ISDRA and Algodones Dunes ecosystem. Two major highways, Interstate 8 (125 acres) and State Route 78 (50 acres), bisect the Algodones Dunes, which may limit the movement of wildlife throughout the Algodones Dunes, and represents a potential source of fatalities to individuals that do attempt to cross the roads.

Four areas within the ISDRA, totaling 49,000 acres, are temporarily closed to OHV use until the ROD for the ISDRA is approved. Interim closures have been in effect since 2000. Prior to establishment of interim closure areas, all areas of the Algodones Dunes were open to OHV use except for the Northern Algodones Dunes Wilderness. One 25,600-acre area is designated as a limited OHV-use area and camping is authorized within 300 feet of designated routes. The management areas have existing land use authorizations and restrictions, that include, for example, access rights-of-way, utility rights-of way, and land use restrictions (see Appendix 2 of RAMP).

Mammoth Wash Management Area: This area consists of approximately 8,100 acres of public land that has historically been exposed to a low level of OHV use (Wright 2002). Historically, even on heavy weekends, approximately 10 to 15 visitor groups camped in the area. However, with the interim closures in effect, this number has risen to as high as 100 vehicles on a major holiday weekends during the past 2 years (Wright 2002). Currently, staging impacts occur on an estimated 200 acres (Wright 2002). This area lacks any visitor facilities such as camping pads, improved roads, latrines, or vendors, all of which would increase impacts. No facilities are planned for development within this area (Wright 2002). One big game guzzler is located on the east side of the Algodones Dunes and will be maintained in cooperation with CDFG.

North Algodones Dunes Wilderness Management Area: BLM manages 26,202 acres of the North Algodones Dunes Wilderness Management Area which experiences a low level of mostly unauthorized OHV use (BLM 2003). Recreational OHV use is not allowed, although illegal trespass sometimes occurs. Most vehicle use results from Border Patrol activities. Three big game guzzlers are present in this management area along its east side in microphyll woodland. State Route 78 constitutes the southern border of this management area, which may limit wildlife movement and result in fatalities to individuals that attempt to cross the road.

Gecko Management Area: This area consists of 21,225 acres of land managed by BLM. This is the most developed management area in the ISDRA. About 589 acres (2.8 percent of the management area) are occupied by camping and staging areas and associated very heavy OHV riding areas. Dispersed OHV riding areas that differ in the level of impacts occupy the remaining 97.2 percent of the management area. Some dispersed OHV riding areas have virtually no impact and resemble the North Algodones Dunes Wilderness Management Area while others are almost devoid of vegetation.

Some of this area is heavily impacted by OHV recreation with highest impact areas along Gecko Road and State Route 78 (Wright 2002). According to the proposed RAMP, each winter tens of thousands of recreational vehicles park intensively along this road and ride between Glamis and Gecko Management Areas just south of State Route 78 (Wright 2002). Heavy use has caused and perpetuates severe devegetation and soil compaction. Such heavy impacts probably depress the number of wildlife and plant species found in and around use areas (Wright 2002). State Route 78 constitutes the northern border of this management area, which may limit wildlife movement and result in fatalities to individual tortoise that attempt to cross the road.

Glamis Management Area: Of the 24,041 acres in this management area, approximately 800 acres (3 percent) are heavily impacted staging areas, primarily within creosote bush scrub and microphyll woodland. These areas have widespread devegetation and soil compaction (BLM 2002). State Route 78 is the northern border of Glamis Management Area, and likely restricts wildlife movement between the North Algodones Dunes Wilderness and Glamis Management Areas.

As with the Gecko Management Area, this area is heavily impacted by OHVs near the Glamis Store on its northeast corner and along the wash road for 3 to 4 miles southward (Wright 2002). The effects of camping recently increased as hundreds of campers moved into the creosote scrub and microphyll woodland south of Glamis Management Area, possibly in response to the temporary camping closure east of Glamis Management Area (Hamada, pers. com. 2002). These portions of the area are subject to some of the heaviest OHV impacts in the ISDRA. As with the Gecko Management Area, some dispersed OHV riding areas resemble North Algodones Dunes Wilderness Area because of the lack of OHV impact, while others show signs of heavy impacts.

Adaptive Management Area: This area contains 33,289 acres of BLM-managed land. No camping, facilities, or staging areas are located within this area, and historical use consisted of dispersed OHV riding. Because no facilities or staging areas are located in this area, fewer areas have received heavy impacts (Wright 2002). Habitat impacts are concentrated around the Tubes, Plane Wreck, and Ceiling Hill, which are popular OHV play sites.

Ogilby Management Area: Staging areas occupy about 300 acres (1 percent) of this 21,710-acre Management Area. This area is popularly used by those seeking a roaded natural recreation opportunity. Patton Valley receives heavy OHV recreational use during holiday weekends. This area has historically been managed for habitat protection and resource conservation with emphasis on protection of habitat for threatened and endangered species.

Dune Buggy Flats Management Area: This area covers 17,000 acres and is similar to the situation described for the Gecko, Glamis, and Buttercup Management Areas. Portions of it receive heavy OHV recreational use, especially in and around staging areas. Camping and intensive OHV riding in and around staging areas has resulted in severe devegetation and soil compaction. These staging areas occupy about 1,800 acres, or over 10 percent of the area (Wright 2002). At present, staging areas fill to capacity on major holiday weekends. Riders also spill over into the East Mesa Flat-tailed Horned Lizard Management Area, creating surface impacts on 62 percent of the surface of the western half of section 31 (BLM 2002). This impact is primarily associated with access to a private business, Pair-a-dice, and the Herman Schneider Bridge. Vehicle impact level increased by 20 percent in the west half of section 31 following the opening of the bridge and closure to camping in 2001 (BLM 2002). This effect may have occurred as more people crossed the bridge from the Buttercup Management Area to reach the Dune Buggy Flats Management Area or because the camping blocked vehicle access in a large portion of section 31.

Buttercup Management Area: Portions of this area, consisting of 7,842 acres, receive heavy impacts, especially around Buttercup Valley, Midway, and Grays Well areas, which have about 100 acres of staging areas (BLM 2002). This management area is readily accessible from Interstate 8 but receives reduced use in less accessible portions of the interior. In addition to OHV impacts, this area also receives heavy Border Patrol, Interstate 8 related, and immigrant

impacts (BLM 2002). The area is isolated from the larger dune system and East Mesa by the All American Canal. The Mexican portion of the Algodones Dunes is contiguous with this area but is bounded by the developed area associated with Ciudad Morelos.

Peirson's milk-vetch

Environmental Baseline

Peirson's milk-vetch populations experience fluctuations that are in part associated with precipitation patterns in the Algodones Dunes (Phillips 2002, 2003; Willoughby 2001). In dune-wide surveys conducted in 1997, 1998, 1999, and 2000, individual Peirson's milk-vetch plants were most abundant in 1998, the highest rainfall year, and least abundant in 2000, the lowest rainfall year. BLM counted 5,064 plants in 1998 (higher than average rainfall) and 942 plants in 1999 and 86 plants in 2000 (both years with lower than average rainfall) along these transects. Response of the species was similar in both the closed and open areas across 4 years of BLM monitoring (Willoughby 2001). In some years, few seeds are likely added to the soil seed bank due to the extreme annual fluctuations in reproductive plant numbers. The patchy distribution of the plants in any given year is likely a combination of several factors including the dynamics of dune morphology, local rainfall patterns and amounts, human disturbances, spatial distribution of the seed bank, and seed scarification.

Based on a comparison of two monitoring studies [a WESTEC study conducted in 1977 (WESTEC 1977) and a BLM study conducted in 1998 (Willoughby 2000)], BLM concluded Peirson's milk-vetch was as abundant and widespread throughout the dune system in 1998 as it was in 1977. However, the Service concluded that these conclusions are not reliable based on internal and external peer review of the subject studies (12-Month Finding on Petition to delist Peirson's milk-vetch). The density classes of WESTEC (1977) were qualitative and based on the apparent visual density of plants as a feature of the landscape. Willoughby (2000) recognized the limitations of the 1977 data, but converted the qualitative measures into quantitative measures for comparison with BLM survey data. The magnitude of non-sampling error in the WESTEC study makes comparison with BLM data statistically inappropriate. (L. Ball USFWS in lit. 2003). In addition, Willoughby (2000) cautions that the data collected during the 2 studies are not directly comparable because the rainfall amounts differed between the 2 years of study and different methodologies were used in the 2 studies. Other interpretation limitations addressed by Willoughby (2000) include: (1) the possibility that observed differences (or lack thereof) were a result of spatial variability within the cells surveyed instead of or in addition to any changes that may have occurred during the 2 time periods; and (2) the observation that precipitation was more favorable during the 1997-1998 growing season than during the 1976-1977 growing season preceding the WESTEC study and could have resulted in the differences observed between 1977 and 1998. Claims of trends of population increases based on comparison of these BLM studies are not valid. However, the distributional comparisons (based on numbers of 0.45 mile x 0.45 mile cells occupied by Peirson's milk-vetch) between the WESTEC 1977 data and

BLM 1998-2002 data are valid. Based on these comparisons, no decrease in the distribution of Peirson's milk-vetch took place between 1977 and 1998, 2 years with above-average growing season precipitation, in the areas of the Algodones Dunes open to OHV use (Willoughby 2000).

Despite the potential for individual plants to die or suffer from reduced reproductive success as a result of vehicle interactions, Willoughby (2001) concluded that healthy Peirson's milk-vetch populations persist in OHV "open areas" in the Algodones Dunes and those populations in both open and closed areas respond similarly to precipitation patterns. He concluded that this likely results from a tendency for OHV use to occur in areas near OHV staging areas and outside of the more remote regions of the open area that support Peirson's milk-vetch habitat (Willoughby 2001).

Thomas Olsen Associates (TOA) (2001) counted 71,926 plants of Peirson's milk-vetch over an area of 35,000 acres (14,165 ha) (Phillips and Kennedy 2003). This equates to about 2 plants per acre (5/ha) during what TOA considered an "explosive germination event." Most recently, Willoughby (2004) estimated densities of Peirson's milk-vetch to be 9 plants/ac (23/ha) in the North Algodones Dunes Wilderness Management Area, and 13/ac (31/ha) in the Gecko Management Area.

Federal Actions in the Action Area

Peirson's milk-vetch was listed as threatened by the Service on November 5, 1998. Prior to listing, activities occurred that eliminated or fragmented the habitat. These include, but are not limited to: the withdrawal Yuma Reclamation Project—New (Realigned) Coachella Canal, early 1980s; the Coachella Valley Canal ROW, canal completed in 1949; the All American Canal, built between 1934 and 1940; the construction and ongoing operation of State Route 78 and Interstate 8, and the construction of the Gray's Well Bridge. This elimination of and fragmentation of the habitat is part of the baseline.

Since the listing of the species, the following actions have occurred: the U.S. Border Patrol has installed cameras in the Buttercup Management Area under a right-of-way granted by BLM in 2003. This specific action has not impacted the baseline. Border Patrol activities, in general, have increased in the last several years. These activities are primarily vehicle use and are part of the use within the RAMP vehicular use calculations.

Temporary closures were implemented by BLM in November 2000 as part of a settlement agreement discussed on page 2. The effect of closures has been a shift from the baseline of where recreation occurs. The shift is a diversion of recreation use from the temporarily closed areas to the open areas. Along the borders of the temporarily closed areas are "sand highways" where roads/trails have been created by users. According to BLM, there is a minor sand highway at the northeastern edge of the Mammoth Wash Management Area interim closure. The highway begins on the east side where people congregate and extends 1-2 kilometers west. On the southern end of the large central closure, which is just inside the northern boundary of the Ogilby

Management Area, there is also a minor sand highway that begins on the southeastern side of the closure and extends a few kilometers east. The closures in Gecko and Glamis Management Areas are considered to be major sand highways. It is likely that once the interim closures are removed, recreation will disperse and the highways will dissipate.

Peirson's milk-vetch critical habitat

Environmental Baseline

Critical habitat is designated by the Service to identify the key biological and physical needs of the species and key areas for recovery, and focuses conservation actions on those areas. Critical habitat is composed of specific geographic areas that contain the biological and physical attributes that are essential to the species' conservation within those areas, such as space, food, water, nutrition, cover, shelter, reproductive sites, and special habitats. These features are called the primary constituent elements of critical habitat, which are described in the Status of the Species section.

Critical habitat is limited to Mammoth Wash, North Algodones Dunes Wilderness, and Ogilby Management Areas. The North Algodones Dunes Wilderness Area lands are managed as semi-primitive, non-motorized recreational settings, have low visitation, and no facilities. Recreation activities in the North Algodones Dunes Wilderness Area include hiking, backpacking, camping, horseback riding, nature study, and wildlife viewing. Forty-two percent (11,301 acres) of the land in this management area is designated as critical habitat, and is included in Subunit 1A.

Within the Mammoth Wash Management Area, lands are managed for semi-primitive, motorized recreation and include low to moderate visitation. No facilities are located within this management area. Recreation activities in this area include camping, non-intensive OHV recreational use and play, hiking, nature study, and wildlife viewing. OHV use in this area is focused more on family-oriented touring and exploring rather than intensive free play. Sixty-four percent of this management area (5,208 acres) is designated as critical habitat, and is included in Subunit 1A.

Ogilby Management Area (critical habitat Subunit 1B) is managed for roaded, natural recreation, and includes moderate to high visitation in some portions of the management area. Recreational activities in this area include camping and OHV touring and free play. In the ISDRA, these areas are characterized by large group camping areas that are considered a group base for further exploring and free play away from the camping area. A moderate to high level of management presence is offered in these areas to provide visitor services and resource protection. Twenty-five percent of this management area, totaling 5,355 acres, is designated as critical habitat.

Critical habitat within Subunit 1A is important to the conservation of Peirson's milk-vetch because it retains the most natural and pristine features of the Algodones Dunes ecosystem and includes the best remaining example of a dune system undisturbed by intensive OHV recreation

in the ISDRA (69 FR 47329). Motorized use in the portion of the Mammoth Wash Management Area that is designated as critical habitat is low due to its separation from the main motorized use areas by the North Algodones Dunes Wilderness. This area is important for habitat, plant and seed bank conservation. The portion of the Ogilby Management Area that is designated as critical habitat is important to the conservation of Peirson's milk-vetch because it represents the largest, widest, and highest sand dune fields within the Algodones Dunes and thereby supports large numbers and high densities of the plant (69 FR 47329). This area is important for habitat, plant and seed bank conservation.

The entire documented United States population of Peirson's milk-vetch and all critical habitat designation for the species occurs within the action area, although some habitat is outside the boundaries of the ISDRA. The proposed RAMP subdivides the ISDRA into management areas, with associated critical habitat as displayed in Table 3 – Critical Habitat per Management Area.

Table 3 – Critical Habitat Per Management Area

Management Area	Total Acreage of MA	Acreage of CH in MA	Percent of MA as CH	Acreage (Percentage) of Dune-Wide Milk-vetch
Mammoth	8,105	5,208	64	5,208 (9.8)
North Algodones Dunes Wilderness	26,202	11,301	42	11,301 (21.4)
Gecko	21,225	0	0	8,363 (15.8)
Glamis	24,041	0	0	9,087 (17.2)
Adaptive	33,289	0	0	11,529 (21.8)
Dune Buggy Flats	16,658	0	0	0
Ogilby	21,710	5,355	25	5,355 (10.1)
Buttercup	7,842	0	0	1,589 (3.0)
Total	159,959	21,864		52,780 (100)

Federal actions since designation

Critical habitat was designated for Peirson's milk-vetch in August 2004. Therefore, the only federal action since designation is the ongoing recreational use in the area. Temporary closures were implemented by BLM in November 2000 as part of a settlement agreement. The effect of closures has been a shift from the baseline of where recreation occurs. The shift is a diversion of recreation use from the temporarily closed areas to the open areas. A GIS analysis was done to determine the overlap of the interim closures and the critical habitat. There is critical habitat

overlap in two management areas where sand highways are occurring. According to BLM, these sand highways are minor and are not likely to adversely affect the critical habitat or the associated primary constituent elements.

Desert Tortoise

Environmental Baseline

The ISDRA lies within the Eastern Colorado Recovery Unit, 6 miles away from the Chuckwalla DWMA (the closest desert tortoise conservation area). Desert tortoises in the Eastern Colorado Recovery Unit occupy small washes, well-developed washes, flat-areas, and rocky slopes characterized by relatively species-rich succulent scrub, creosote bush scrub, and microphyll woodland communities. Winter burrows are generally shorter in length, and activity periods are longer than elsewhere due to mild winters and summer precipitation. Desert tortoises feed on summer and winter annuals and some cacti and den singly. They have the California mtDNA haplotype and shell type.

Within the Eastern Colorado Recovery Unit, the recovery plan deemed threats to desert tortoise as relatively high, receiving a 4 on a scale of 1-5. The Chuckwalla DWMA is the only DWMA that lies entirely within the Eastern Colorado Recovery Unit. The Chuckwalla DWMA has two study plots that provide density estimates and trend data: Chuckwalla Bench and Chuckwalla Valley. In 1979-1982, estimated densities were 578 desert tortoises per square mile on the Chuckwalla Bench study plot, and 163 desert tortoises per square mile on in the Chuckwalla Valley study plot. By 1990-1992, estimated densities had declined to 160 desert tortoises per square mile on the Chuckwalla Bench study plot, and 73 desert tortoises per square mile on the Chuckwalla Valley study plot. The 1988-1991 estimates ranged from 5-175 adults per square mile (overall average of 15 adults per square mile). Desert tortoise densities in the ISDRA are probably low based on the rarity of desert tortoise sign and desert tortoise sightings. Fall 2002 surveys conducted in the ISDRA yielded few observations of desert tortoise sign, and no observations of live desert tortoises. However, surveys did not cover the entire area of potential desert tortoise habitat within the ISDRA. Recorded desert tortoise sightings include: one desert tortoise found in the Buttercup Management Area in the late 1980's (Watkins, pers. comm. 1991); one on Vista Mine Road about 0.5 miles from the RA in 2001 (Himmerich, pers. comm. 2001); and a third between Ted Kipf Road and the railroad 1 mile north of Clyde also in 2001 (Heine, pers. comm. 2001). A possible desert tortoise burrow was seen in the open area several miles southwest of Glamis Management Area in the spring of 2002 (Wright, pers. comm. 2002). All sightings have been on the east side of the Algodones Dunes, primarily associated with microphyll woodland and creosote bush scrub. Beginning in the 1980's and into the 1990's, over 100 desert tortoises were relocated to the area south of Mesquite Mine along Ogilby Road and Vista Mine Road, within 0.5 to 2.0 miles of the ISDRA. Abundant desert tortoises (from 0 to 59 desert tortoises per square mile) occur in the vicinity of Mesquite Mine about 3 miles east of the ISDRA (Nicholson 1984), and an average desert tortoise density of 20 desert tortoises per square mile was reported for the proposed Mesquite Regional Landfill site directly to the east of ISDRA.

Though desert tortoises are known to occur in the immediate and general vicinities, the absence of desert tortoises detected during the 2002 fall survey of 20 transects within ISDRA (G. Wright, pers. comm. 2002), and the history and increasing trend of recreation around the Algodones Dunes, indicates that desert tortoise densities are low in the ISDRA.

Federal actions in the action area

Desert tortoise was listed by the Service in 1980. Prior to listing, activities occurred that eliminated or fragmented the habitat. These include, but are not limited to: the withdrawal Yuma Reclamation Project—New (Realigned) Coachella Canal, early 1980s; the Coachella Valley Canal ROW, canal completed in 1949; the All American Canal, built between 1934 and 1940; the construction and ongoing operation of State Route 78 and Interstate 8; and the construction of the Gray's Well Bridge. This elimination of and fragmentation of the habitat is part of the baseline.

Since the listing of the species, a number of plans have been written and other species have been listed. In addition to the plans and listings, the following actions have occurred: the U.S. Border Patrol has installed cameras in the Buttercup Management Area under a right-of-way granted by BLM in 2003. This specific action has not impacted the baseline. Border Patrol activities, in general, have increased in the last several years. These activities are primarily vehicle use and are part of the use within the RAMP vehicular use calculations.

Temporary closures were implemented by BLM in November 2000 as part of a settlement agreement discussed on page 2. The effect of closures has been a shift from the baseline of where recreation occurs. The shift was a diversion of recreation use from the temporarily closed areas to the open areas. Along the borders of the temporarily closed areas are newly formed "sand highways" where roads/trails have been created by users. The area outside of the interim closures continued to be used for recreational purposes. However, this recreational use shift and creation of "sand highways" has had no affect to the baseline due to the lack of desert tortoise habitat and infrequent sightings of tortoises.

EFFECTS OF THE ACTION

Elements of BLM's program guidance that are not likely to adversely affect Peirson's milk-vetch, Peirson's milk-vetch critical habitat, or desert tortoise have been noted above in the Multiple Use Classes and Program Elements sections. The remaining elements that could adversely affect these species are fire management; wildlife; vegetation; geology, energy, minerals resources; energy production; and recreation. Though we have evaluated the general effects of these activities below, we can not assess the effects of future specific actions because data on the locations, timing, size, purpose, and other aspects are not known at this time. Implementation of these activities, other than the recreation use that is analyzed in this biological opinion, requires separate, discretionary approval by BLM and would be analyzed in future required consultations.

Fire Management Element

As mentioned previously, the psammophytic scrub habitat that supports Peirson's milk-vetch is too sparse to support a wildfire, so any effects from fire suppression activities to the species or its critical habitat are highly unlikely. Any effects from fire suppression activities would be to either the creosote bush scrub or microphyll woodland habitats that may be occupied by desert tortoise. If suppression activities involve ground disturbance, such as building of fire breaks with bulldozers or by hand, direct impacts to desert tortoise or their burrows are possible.

Where soils are typically low in nutrients, the addition of nutrients may cause an increase in the abundance of non-native plant species, possibly affecting the food source for desert tortoise. The low numbers of desert tortoise within the action area reduces the likelihood that fire control lines would be placed through occupied habitat or that any alteration of the habitat through the introduction of non-native plants would affect the species. The normally low frequency of fires should ensure that the chemistry of the soils is not substantially changed by lower concentrations of fire retardants.

Overall, the effects of BLM's fire management are not likely to adversely affect Peirson's milk-vetch, its critical habitat, or desert tortoise because fire suppression activities are highly unlikely to occur in the habitat (both critical and non-critical) of Peirson's milk-vetch and because fires are infrequent in desert tortoise habitat and the low number of desert tortoises in the action area reduces the likelihood of impacts to desert tortoise even if fire suppression activities do occur.

Wildlife Element

The control of depredating wildlife and pests within Class L, M, and, I lands may result in the trampling or crushing of individuals of Peirson's milk-vetch or direct effects on desert tortoises or their burrows, though such control activities are unlikely to occur in the action area. Because no livestock grazing allotments exist in the action area, the likelihood for depredation by wildlife on livestock, which is by far the most common reason for wildlife control measures on BLM lands, is remote. Control of ravens to benefit the desert tortoise is unlikely because of the low number of desert tortoises in the action area. These activities are not likely to adversely affect Peirson's milk-vetch, its critical habitat, or desert tortoise due to the small number of individuals and a limited area affected by this program element.

Within Class M and I lands, the chemical and mechanical manipulation of habitat to improve its value for wildlife would likely have more substantial effects on the species than the control of depredating wildlife and pests because these activities can alter the functioning of biotic communities and, to be effective, large amounts of land would need to be treated. However, such manipulation is highly unlikely to occur in either the psammophytic scrub habitat that supports Peirson's milk-vetch and its critical habitat or in the creosote bush scrub or microphyll woodland habitat that may be occupied by desert tortoises. The psammophytic scrub and creosote bush scrub habitats have nutrient-poor soils and are unable to support a different plant

community that would have greater value for wildlife than now exists. Also, both habitats within the action area support sensitive wildlife species considered important to BLM (BLM 2003). Thus, no manipulation is likely to occur in either of these habitats. The microphyll woodland habitat is generally in good condition within the action area and is recognized by BLM to provide important wildlife habitat (BLM 2003). Because of the condition of the habitat, it is highly unlikely that BLM would attempt to change the microphyll woodland habitat to another habitat type. Measures to restore microphyll woodland habitat in certain areas where it has been degraded by human activity are possible and might have effects on the desert tortoise (but not Peirson's milk-vetch). Such effects, however, would not be likely to adversely affect the desert tortoise because of the low densities of desert tortoise in the action area and the fact that such restoration activities could have a positive effect on the species by improving its habitat.

The reintroduction or introduction of established exotic animal species may degrade habitat for the listed species and reduce their abundance if the exotic species foraged or otherwise behaved in a manner that caused extensive ground disturbance (e.g., rooting for food by wild pigs) or resulted in excessive consumption of individual plants. However, given the arid and generally sparse plant communities in the region where these species occur, the likelihood is low that BLM would propose or undertake an applicant's proposal to introduce exotic species. This element also allows the reintroduction or introduction of native animal species. We are not aware of any native species that is likely to be introduced or reintroduced in this region. Consequently, any threat posed to Peirson's milk-vetch, Peirson's milk-vetch critical habitat, or desert tortoise by the introduction of native or exotic animal species is negligible and adverse effects are unlikely to occur.

Vegetation Element

The removal of native plants for commercial and non-commercial purposes and harvesting by mechanical means could adversely affect Peirson's milk-vetch, Peirson's milk-vetch critical habitat, and desert tortoise in much the same manner as the control of depredating wildlife and pests. According to BLM, the threat posed by this activity is likely low, and adverse effects are unlikely to occur, due to the lack of commercially important species in the region.

Noxious weeds can be eradicated on Class L lands by chemical means and spot application of pesticides may be allowed on Class M and I lands after site-specific planning. The use of such chemicals could kill individuals of the listed species, if used in close proximity or inappropriately. Some chemicals may also eliminate or substantially reduce the abundance of pollinators; the loss of pollinators would likely reduce the reproductive success of Peirson's milk-vetch . However, chemical control of vegetation is likely to be used only to combat non-native species, which would, by their nature, pose a threat to Peirson's milk-vetch. Chemicals would be applied using the guideline of best management practices for minimizing or eliminating any threat to potential pollinators. Consequently, this element poses a low level of threat to the listed species, and adverse effects are unlikely to occur.

Geology, Energy, Minerals Resources Elements

No exploration for and development of leasable materials are allowed on the Class C lands within the ISDRA. Exploration for and development of leasable minerals are allowed within Class L, M, and I lands. Leasable materials include sodium, potassium, oil, gas, uranium, and geothermal. BLM must prepare an environmental assessment, in compliance with the National Environmental Policy Act; mitigation and reclamation measures will be required to protect and rehabilitate sensitive, scenic, ecological, wildlife, vegetation, and cultural values. In certain cases, where there are no effects to threatened or endangered species, BLM may proceed after the adoption of a categorical exclusion.

Locatable materials include iron, gold, silver, talc, tungsten, zinc, limestone, rare earths, and borates. The location of mining claims is non-discretionary. Operations on mining claims within Class C, L, M, and I lands are subject to 43 CFR § 3809 and applicable State and local laws. Class C lands within the ISDRA have been withdrawn from mining; therefore, mineral extraction could take place only on mining claims that were in existence at the time of the passage of the California Desert Protection Act in 1994 that are found by BLM to be valid existing rights. BLM will review plans of operation for potential impact to sensitive resources; mitigation, subject to technical and economic feasibility, will be required.

The extraction of saleable minerals, which include sand and gravel, is not allowed within Class C lands. The extraction of saleable minerals is allowed within Class L, M, and I lands. An environmental assessment will be required for any new materials sales locations, except when the adoption of a categorical exclusion is deemed appropriate. The continued use of existing areas of sand and gravel extraction is allowed, subject to permits issued by BLM.

Mineral leasing is not allowed on the Class C lands within the ISDRA. Mineral leasing in Class L areas may require an environmental impact statement if the "significance" criterion is exceeded, unless the activity is exempted by the Department of the Interior's National Environmental Policy Act guidance on categorical exclusions (46 FR 7492-7496). All other leasing activities in Class L, M, and I lands are processed in accordance with BLM's existing National Environmental Policy Act compliance process as provided for in 40 CFR § 1500 and 43 CFR § 3100, § 3200, and § 3500. Mineral material sales in Class L, M and I lands are processed under 43 CFR § 23 and § 3600. In addition, in Class L lands, only existing extraction areas can be used. If a new extraction area in a Class L area is expected to be larger than 5 acres in size, a programmatic environmental impact statement will be prepared to cover the entire area of potential extraction.

Any exploration, development, or production activities for these geological, energy or mineral resources would require compliance under section 7 through separate consultation. Given the focus of BLM on recreation and biological resources conservation in the ISDRA, the likelihood of these conflicting resource uses being developed would appear discountable. The proposed action's effects on Peirson's milk-vetch, its critical habitat, or the desert tortoise are negligible.

Energy Production and Utility Corridors Elements

The goals of the CDCA Plan for this element included the full implementation of a network of planning corridors to meet the projected utility needs to the year 2000, the identification of environmental constraints and citing procedures to be used by telecommunications firms and public agencies, and the identification of potential sites for geothermal development, wind energy parks, and power plants. Sixteen planning corridors were identified in the CDCA Plan. They are intended to include new electrical transmission lines of 161 kilovolts or above, all pipelines with diameters greater than 12 inches, cables for interstate communications, and major aqueducts or canals for inter-basin transfers of water. The corridors vary in width from 2 to 5 miles.

The CDCA Plan also identifies 9 contingent corridors in the event transmission needs change. A contingent corridor can be activated with an amendment to the CDCA Plan.

Since the CDCA Plan was signed, BLM has amended it to approve 2 additional corridors, moved a portion of corridor BB, and deleted contingent corridor W and portions of corridors M and E. BLM has also designated new corridors, provided permission to construct gas and oil pipelines and fiber optic cables outside corridors, and activated portions of contingent corridors as project-specific amendments to the CDCA Plan.

BLM may also allow the siting of microwave tower sites, and conventional, solar, geothermal, wind, and nuclear power plants on BLM lands within the CDCA.

According to the biological evaluation, only operation and maintenance of existing transmission lines within Corridor L south of Interstate 8 may adversely affect Peirson's milk-vetch, Peirson's milk-vetch critical habitat, or desert tortoise. Trucks and equipment will access the poles and lines over the period of the 15-year period and may crush plants. This access will not likely have any additional impacts than the OHV use over the same time period. To some extent, the existing 500KV towers may protect plants by discouraging vehicles near the tower bases and diverting OHV traffic along a "sand highway" north of the towers. The effect of the proposed action to the plant and/or critical habitat is negligible, and adverse effects are unlikely to occur.

Operation and maintenance of the existing transmission lines within Corridor L may impact individual desert tortoises, but this is considered unlikely because no desert tortoises have been sighted in the area since the 1980s (Wright 2002, Desert Tortoise Impact Assessment, part of BLM's biological evaluation).

Though two Known Geothermal Resource Areas underlie the ISDRA, no leases have been issued. Several oil and gas leases exist but no development has occurred. Any exploration, development, or production activities for these mineral resources would require compliance under section 7 through separate consultation. Given the focus of BLM on recreation and

biological resources conservation in the ISDRA, the likelihood of these conflicting resource uses being developed would appear discountable. The effect of this proposed action on Peirson's milk-vetch, its critical habitat, and desert tortoise is negligible.

Recreation and Motorized Use Elements

Recreation in the ISDRA ranges from low intensity recreation of bird-watching, hiking, and photography to mid-level recreation of tent camping to high-level impact recreation of OHV use. Although the lower intensity recreation may occur throughout the Algodones Dunes, the low-use areas such as the North Algodones Dunes Wilderness and Mammoth Wash Management Areas host most of these activities. Tent camping is done in a dispersed manner throughout the Algodones Dunes and recreation vehicle (RV) camping is done in areas along roads and staging areas. For the purpose of this biological opinion, the analysis will focus on the high-intensity use of OHVs since this activity is more likely to adversely affect Peirson's milk-vetch, its critical habitat and desert tortoise than the other activities, which as likely to have a minimal affect on Peirson's milk-vetch, its critical habitat, and desert tortoise.

Peirson's milk-vetch

Vehicles can crush individual plants and reduce the reproductive output of those that survive. In spring 2001, Phillips (2001) noted that during 13 survey days, 667 plants (of 71,926 plants counted) suffered some level of damage, presumably from vehicles. In spring 2003, Phillips and Kennedy (2003) reported that during 6 survey days, 430 plants (1.3 percent of seedlings counted and 6 percent of plants more than a year old counted) showed evidence of OHV damage. Most of these plants were not killed by the damage at the time they were observed, although the plants were not subsequently monitored to determine if they survived through the growing season or suffered reduced reproductive success as a result of damage. Willoughby (2004) reported that 6 of 15,601 plants counted in the Wilderness and Gecko Management Areas in spring 2003 showed signs of OHV impact.

Phillips *et al.* (2001) reported that the vast majority of plants observed were of a uniform age and in their first year. Phillips *et al.* (2001) also asserted that most run-over plants were resilient with no apparent damage to the stems or the flowers. Phillips *et al.* (2001) stated that tire damage would not occur from running over a first-year Peirson's milk-vetch, though they did not attempt to study the physiological effects of being run-over nor track the fate of impacted plants. Though seedlings may be resilient under certain conditions (Phillips *et al.* 2001), such as light traffic levels, Pavlik (1979) concluded that seedlings of *Astragalus lentiginosus* var. *micans* likely were seriously damaged where they were run-over multiple times, such as under moderate to heavy traffic conditions. By contrast, larger mature plants have a single brittle stem that tends to break, rather than bend (ECOS 1990), and provides little obstacle to riders (Romspert and Burk 1979, ECOS 1990). A lack of lateral roots also may reduce the plant's ability to remain anchored and

survive vehicle-induced damage (Romspert and Burk 1979, Sebesta in lit. 2002). Pavlik (1979) tracked the fate of affected individuals in a related dune-dependent Peirson's milk-vetch, and documented reduced survival and reproduction from OHV disturbance.

The physiological response of plants to vehicular impacts apparently depends on numerous variables (Pavlik 1979), such as age of the plants, vehicle speed and weight, tire spin, substrate moisture, and frequency of encounters. Sebesta (in lit. 2002) and Porter (in lit. 2003) observed injured and dead Peirson's milk-vetch plants caused by OHV traffic. Since vehicles would not be limited to a route network, all occurrences of Peirson's milk-vetch in open areas of the Algodones Dunes would be subject to risk of vehicular damage. The degree of risk varies with distance from vehicle staging areas or other areas popularly visited by OHV riders. Phillips *et al.* (2001) noted OHV drivers avoid the vegetated basins where Peirson's milk-vetch occurs because of the potential from tire damage from the woody stems of shrubs and the wood scattered on the ground from dead plants.

The primary OHV recreation season coincides with the winter and spring periods of seed germination, growth, and flowering of Peirson's milk-vetch (Romspert and Burk 1979, Willoughby 2000, Phillips *et al.* 2001). As a result, the anticipated increased vehicle use in areas of Peirson's milk-vetch occurrence likely will reduce reproductive success because plants or branches are damaged or destroyed prior to seed-set. Moreover, reproductive output is likely reduced over the long-term if fewer plants mature because larger perennial individuals reportedly produce more seed than smaller individuals (Pavlik and Barbour 1986, Romspert and Burk 1979). While over 70,000 Peirson's milk-vetch seedlings were counted during a recent census of a portion of the range of the plant during a winter that experienced high rainfall, seedling survival was not assessed and only five individuals greater than 1-year old were observed (Phillips *et al.* 2001). This discrepancy in age-class distribution suggests that older, more productive plants may, at least, periodically be suffering high mortality. The low number of plants greater than 1-year old observed by Phillips *et al.* in spring 2001 was likely the result of two consecutive dry growing seasons following the wet growing season of 1997-1998. The 1998-1999 and 1999-2000 growing seasons experienced rainfall that was only 49 percent and 37 percent, respectively, of the long-term average (Willoughby 2001).

Romspert and Burk (1979) observed that older plants were the primary seed producers and that plants that become reproductive in the first season do not make significant contributions to the seed bank. However, Phillips and Kennedy (2002) concluded that first-year plants can have a significant effect on the seed bank. First-year plants that flower and set seed likely contribute to the seed bank. In a comparison between the mean number of fruits from older and younger plants, Phillips and Kennedy (2002) found that older plants had a mean of 171.5 fruits compared with an estimated 5 fruits for first-year plants. With an average of 14 seeds per fruit (Barneby 1964, TOA 2001), younger plants could produce 70 seeds while older plants could produce almost 2,400 seeds per plant. Given the greater number of younger plants following wet years, both older and younger plants that flower and set seed likely are needed to maintain the population.

At the time of listing, an estimated 75 percent of the ISDRA was open to motorized vehicle use; however, use patterns within the open areas are poorly documented. Since listing, border traffic associated with illegal entry into the United States has increased significantly in the Algodones Dunes (Willoughby, pers. comm.). The number of visits to the ISDRA has tripled since 1985 (BLM 2002). Absence of Peirson's milk-vetch has been observed in many high use areas (ECOS 1990, Phillips *et al.* 2001, Willoughby 2001), which to some extent is likely attributable to local extirpation of the plant due to use intensity.

During the 10- to 15-year implementation period of the proposed RAMP, Peirson's milk-vetch populations likely will decline in areas of heavy use. Based on the projected doubling in recreational use levels between 1998 and 2013 (BLM 2002), heavily used areas likely will increase in intensity and size as recreational demand continues to grow. However, BLM management likely will prevent such a decline in the North Algodones Dunes Wilderness Management Area and AMA. Nonetheless, as OHV use in the Algodones Dunes increases in accordance with the planning guidelines provided in the proposed RAMP regions outside the North Algodones DunesWilderness Management Area and AMA, an unquantified number of plants may be run over and consequently damaged or killed by vehicles. Reproductive output of individual plants may be reduced, which may result in detectible changes in Peirson's milk-vetch population over the long-term. Given the magnitude of recreation use on the Algodones Dunes and the temporal overlap between the growth and reproduction of Peirson's milk-vetch with periods of visitation, Peirson's milk-vetch is vulnerable to physical damage. However, BLM's efforts aimed at visitor education will lessen this effect. Moreover, though continued and intensified OHV use likely will reduce, to some degree, Peirson's milk-vetch abundance, numbers, and distribution outside the North Algodones Dunes Wilderness Management Area and AMA, we anticipate that BLM's high precision monitoring and adaptive management process will identify and reverse any significant adverse effects to the species or population as a whole.

To reasonably ensure there are no irreversible local population declines, BLM proposes to conduct intensive monitoring of Peirson's milk-vetch population and respond to appropriate declines with changes in local management. Due to the high level of natural temporal and geographic variability in plant numbers, monitoring would allow botanists to feasibly and accurately detect fairly coarse changes in the population size. Accordingly, a "management threshold" was selected to trigger management changes if the population of reproductive Peirson's milk-vetch plants declines by 50 percent in any management area. We anticipate population declines to the 50 percent management threshold are possible within the management areas that appear to receive most of the heavy OHV use, including Gecko, Glamis, parts of Ogilby (the areas without designated critical habitat), and Buttercup Management Areas. However, if such declines are detected, BLM proposes to remedy the situation by implementing management measures jointly agreed to by BLM and the Service during consultations, as described on 20-22 and illustrated in Figure 1. These measures may include exercising the authorities vested in BLM under FLPMA and closing areas of Peirson's milk-vetch habitat pending reinitiation of consultation with the Service regarding proposed remedies. Implementation of management measures in an area that has suffered a population decline of this

magnitude would help release Peirson's milk-vetch plants from the impacts of OHV activity. Although the 50 percent management threshold is based on the ability to detect the change, rather than physiological or ecological characteristics of the species, the selection of this parameter is validated by the ongoing presence of a seed bank; even if a population has experienced a 50 percent decline, we anticipate that germination of seeds present in the soil would allow the population to rebound if disturbance was minimized. After the initial 4 years of intensive data gathering, BLM and the Service will continue to monitor the species and may increase or decrease the threshold percentage based on measurements and observations over time. Factors that may influence a change in either direction could include, but are not limited to, rainfall patterns, temperature, effects of natural disasters, and effects of recreational use.

Adaptive Recreation Management:

Peirson's milk-vetch is found in seven of the eight proposed management areas and the local level of adverse effect would depend on the amount and distribution of vehicular recreation in each management area.

Within the AMA, BLM proposes to authorize OHV use only by permit. No more than 75 groups will be given a permit at any time, with a maximum of 7 vehicles per group. As a result, a maximum of 525 vehicles each day could be authorized to use the AMA until higher resolution data become available. A low-use level with a restricted footprint may occur under the proposed AMA guidelines. Alternatively, it would be possible, given the projected number of permits and the acreage of the AMA, for permitted vehicles to drive over the entire surface of the AMA within 6 peak holiday periods if each vehicle drove 21 miles per day (calculations based on 2, 6-inch tire tracks per vehicle). However, BLM proposes to require an education program for AMA visitors. This program is expected to reduce the potential vehicle impacts to Peirson's milk-vetch occurrences. The proposed camping prohibition and limit on vehicle use likely would result in lower adverse effect levels compared to other higher use management areas, and provide a management area with numerous Peirsons's milk-vetch/swale populations in a large region with relatively light-use levels (BLM 2003). For the long-term, BLM proposes to monitor Peirson's milk-vetch abundance in the AMA more intensively than in the other management areas. In addition to conducting monitoring to derive estimates of population size, as done in the other management areas, BLM will also monitor a control (closed to OHVs) area and a treatment (open to OHVs) area, each of which will be about 250 acres in size. As described in the project description, based on the results of this monitoring, BLM will adjust the number (525 permits per day) of permits authorized to 0, if necessary, to maintain the Peirson's milk-vetch population.

Outside the North Algodones Dunes Wilderness Management Area and the proposed AMA, the RAMP identifies a dune-wide recreational carrying capacity (called "visitor supply" in the RAMP) of 22,963 vehicles and 80,370 campers per day on the remaining 99,951 acres (63 percent) of the ISDRA. Historically, however, visitation during major holiday weekends has often exceeded 100,000 visits, which exceeds the desired carrying capacity (draft EIS). BLM proposes to modify management if visitor numbers exceed the desired carrying capacity for 15

percent of the season. Based on existing use patterns, the designated carrying capacity likely will not be exceeded for 15 percent of the recreation season, even if the number of people using the Algodones Dunes increases substantially. Approximately 50 percent of the annual visitation occurs over the 6 holiday weekends that span approximately 21 calendar days (BLM 2002), but to trigger management changes, use in excess of designated carrying capacity would have to occur for 37 days during the recreation season (BLM 2003). Therefore, even if overall visitor numbers increased dramatically, the identified trigger for management change would only be reached if use patterns changed substantially, and a significant increase in visitation began occurring on non-holiday weekends. Regardless, the level of visitation on holiday weekends may continue to increase at approximately 5 percent per year under the proposed RAMP (draft EIS). Based on recorded use levels, dune visitation increased 111 percent between 1994 and 1999 (63 FR 53596) although this increase in visitor use apparently did not result in a decrease in the overall distribution of the species based on the findings reported in Willoughby (2001).

Over 850,000 visitor-use days occurred during the 1999-2000 season (BLM 2002). Based on the proposed plan, BLM (2002) anticipates an increase in visitor use from 867,753 in 2001-2002, to 1,637,000 in the 2012-2013 seasons. An increase in visitation likely would have an adverse effect on the Peirson's milk-vetch due to the likelihood of increased OHV–plant interactions. Although some plants will survive being run over, the increase in interactions likely would negatively impact the plants in total. A monitoring plan, as discussed above, has been established to answer this and other related questions. Based on the data collected, BLM and the Service will coordinate to modify the management of the Algodones Dunes under the adaptive management commitment for managing for the continued conservation of the species.

The geographic extent of adverse effects to Peirson's milk-vetch may expand from construction of facilities; such as pit toilets, camping pads, and vendor stations. Direct effects to Peirson's milk-vetch from construction of facilities are unlikely because the proposed locations do not overlap with the known distribution of Peirson's milk-vetch in the Algodones Dunes. However, such facilities may indirectly affect nearby plant populations by creating nodes of higher use as visitors are attracted to these conveniences. Facilities proposed in the RAMP include: (1) a short-term vendor area in Buttercup Management Area; (2) pit toilets and a short-term vendor area in Dune Buggy Flats Management Area; (3) pit toilets (in Glamis flats and washes) and a short-term vendor area in Glamis Management Area; (4) 15 acres of new camping sites and a long-term vending area in Gecko Management Area; and (5) a new camping area at Mammoth Wash Management Area. Heavy impacts, such as a reduction in the extent of dune plant communities, are associated with such facilities in the ISDRA (Luckenbach and Bury 1983, ECOS 1990, Phillips *et al.* 2001, and Willoughby 2001). However, because these new facilities are proposed for areas that are already used by OHVs, the extent of any increase in adverse effects resulting from construction of these new facilities should not be significant.

Because the proposed RAMP would allow for substantial increases in OHV use in specified areas over the 10- to 15-year life of the RAMP, continued implementation of the CDCA Plan, as amended by the proposed RAMP, likely will adversely affect Peirson's milk-vetch plant survival

and reproduction principally by individual Peirson's milk-vetch plants being run over by passing vehicles in areas outside the North Algodones Dunes Wilderness Management Area and AMA. However, BLM's efforts aimed at visitor education will lessen this adverse effect. Moreover, the magnitude of adverse effectswould be limited by the proposed intensive monitoring and adaptive management program and immediate management changes that would occur should degradation, exceeding the specified threshold, take place.

Peirson's milk-vetch critical habitat

Continued implementation of the CDCA Plan, as amended by the proposed RAMP, would allow for substantial increases in the amount of recreational vehicular traffic in specified areas over the 10- to 15-year life of the RAMP. The extent and degree of any related impacts likely depends on factors like the type of vehicle, extent of use, topography, and type of vegetation. According to BLM (2003) the primary effect of vehicles on the ISDRA would be increased erosion and creation of vehicle tracks. Although the visual effects of OHV tracks may disappear in the wind, vehicle traffic can have a long-lasting impact on the mobile sand dunes that is manifested by a lack of vegetation (BLM 2003). Degradation to dune vegetation would be highest in areas closest to concentrated, OHV-based camping areas, where the absence of psammophytic scrub and Peirson's milk-vetch plants has been documented. OHV damage to plant and animal communities has been documented in the Algodones Dunes, where species richness and biomass for several taxa plants, invertebrates, reptiles, and mammals have apparently been substantially reduced in heavy OHV-use areas (Luckenbach and Bury 1983). In addition, Carpelan (1995) described the adverse effects of dune buggies on desert beetle habitat (*Psuedocotalpa andrewsi* Hardy). However, none of the heavily used areas are within designated critical habitat. In addition, OHV damage would be limited by the proposed intensive monitoring and adaptive management program and immediate management changes that would occur within critical habitat should degradation, exceeding the specified threshold, take place.

Norris (1995) noted that OHV use reduced the Tule Wash barchan dune, west of the Salton Sea, to a "shapeless mound of sand 2/3 its original height" and ongoing vehicle use had modified some of the smaller dune forms found in the Algodones Dunes. Competition Hill, a dune used for intense recreation activity, has been reduced in size over many years due to the accelerated displacement of sand down the slope (Neil Hamada, BLM, pers. comm.). In a study of 6 soil types in central California, Webb and others (1978) not only concluded that OHV traffic impedes revegetation, but this activity increases erosion and decreases soil nutrients. Though this study did not involve active dunes or sand, the authors also noted that sandy loam soils had decreased surface strength and lower soil moisture. As a result of the above discussion and given the fine sands of the Algodones Dunes, the potential long-term adverse effects of OHV activity to the primary constituent elements of Peirson's milk-vetch likely are: (1) erosion and flattening of slopes and swales, (2) accelerated drying or reduced available soil moisture after rainfall events, and (3) reduced or eliminated vegetative cover.

As described in the following table, biological monitoring, guzzlers maintenance, signage maintenance, watchable wildlife site maintenance, movie filming permitting, boundary signing, updating kiosk at watchable wildlife site, new camping area designation, and roads watering for dust control as required by Imperial Air Pollution Control District (APCD) will have no to miniscule effect on designated critical habitat and the primary constituent elements. Camping likely will have a limited impact on the critical habitat because conscientious tent campers can minimize impacts by avoiding camping on top of or near Peirson's milk-vetch individuals. RV campers can minimize impact by utilizing areas that have already been impacted. As a result, we anticipate that camping overall in these areas will have a limited impact on the critical habitat.

Proposed Activities within Management Areas that have Critical Habitat

Mammoth Wash Management Area 8,105 acres, 1,497 acres camping, 808 vehicles/day, 2,829 campers/day	- Biological monitoring - Maintain guzzlers - Allow filming permits - New camping area - Water roads for dust control as required by Imperial APCD
North Algodones Dunes Wilderness Management Area 26,202 acres; 26,202 acres available dispersed camping; 0 vehicles/day; 74 campers/day	- Biological monitoring - Maintain guzzlers - Maintain signage - Maintain Watchable Wildlife site- Allow filming permits - Boundary signing - Update kiosk at watchable wildlife site
Ogilby Management Area 21,710 acres, 1,539 acres camping, 2,770 vehicles/day, 9,696 campers/day	- Biological monitoring - Allow filming permits - Water roads for dust control as required by APCD

Though OHV use likely will adversely affect individual Peirson's milk-vetch plants, critical habitat is only designated in areas of no to moderate use. Moreover, over the 15-year period of the proposed action, the adverse effects from OHVs described above as a result of the proposed action likely would neither be detectible nor measurable within designated critical habitat. Dune alterations that adversely affect the habitat (and specifically those features essential to the conservation) require an extensive period of time (probably 50 years or more). Moreover, actions under the RAMP over the next 15 years would not appreciably diminish the value for conservation in both the short and long-term because the OHV use in Ogilby Management Area is moderate and can be regulated through FLMPA measure directing BLM to take immediate measures to protect the resource should a degradation of primary constituent elements be observed. This measure is assured by the implementation of the Recreation Opportunity Spectrum classification directing use in the management areas (keeping Ogilby Management Area as moderate and not high use), the monitoring program, and the commitment by BLM to take appropriate measures should there be any appreciable diminishment of the conservation role and value of the dune structure.

In summary, none of the areas heavily used by OHVs are within designated critical habitat. In addition, OHV damage would be limited by the proposed intensive monitoring and adaptive management program and immediate management changes that would occur within critical habitat should degradation, exceeding the specified threshold, occur. Though the potential adverse effects of OHV activity to the primary constituent elements of Peirson's milk-vetch likely are: (1) erosion and flattening of slopes and swales, (2) accelerated drying or reduced available soil moisture after rainfall events, and (3) reduced or eliminated vegetative cover, the non-OHV related activities will have no to a limited effect on designated critical habitat. Moreover, despite moderate OHV activity proposed for the Ogilby Management Area (Subunit 1B), the potential long-term adverse effects from OHVs described above as a result of the proposed action likely would neither be detectible nor measurable within designated critical habitat over the 15 years of the proposed action. In addition, little degradation is anticipated in Subunit 1A given the limited to no OHV use in Mammoth Wash Management Area and North Algodones Dunes Wilderness. In light of these impacts and the proposed management actions within critical habitat, the proposed RAMP likely will not appreciable diminish or significantly influence the function and conservation role of designated critical habitat occur over the 15-year time period of implementation.

Desert Tortoise

The recovery plan and critical habitat designation of desert tortoise include sufficient space to support viable populations within each recovery unit. This delineation is to assure movement, dispersal, and gene flow; sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality. Incidental take has been authorized in some of the other recovery units, but there have also been significant off-setting measures that focus on the recovery and long-term conservation of the species through BLM's completed bio-regional plans. This analysis focuses on the effects of any actions in the ISDRA. The ISDRA RAMP area is on the western fringe of the Eastern Colorado Recovery Unit and is outside of critical habitat. This biological opinion will focus only on a jeopardy/no jeopardy analysis. Adverse modification to critical habitat will not be addressed because there is no critical habitat in the action area.

In general, vehicular traffic in desert tortoise habitat would be expected to negatively impact desert tortoises through direct mortality, damage to habitat, and collecting. Trash associated with camping and other uses attract desert tortoise predators, such as coyotes and ravens. Domestic dogs, which also kill and injure desert tortoises, would be brought to the ISDRA by visitors. Owing to the apparent low density of desert tortoises in the ISDRA, such incidences would be expected to be rare and to occur in management areas on the east side of the ISDRA, including Mammoth Wash, North Algodones Dunes Wilderness, Adaptive, Glamis, and Ogilby . Management Areas. Indirect effects beyond the ISDRA may occur due to raven and coyote

attraction to human byproducts in the ISDRA and possible support of higher predator population levels. This possible indirect effect is not quantifiable, but can be minimized through effective waste management in the ISDRA.

Mammoth Wash Management Area: Use of this area is expected to increase, which could result in increasing potential for take of desert tortoises. One big game guzzler also occurs on the east side of the Algodones Dunes. Vehicular access to maintain these guzzlers could result in occasional desert tortoise fatalities, as well as minor habitat degradation on the order of less than 2 acres. The possibility of drowning in the guzzlers is remote because they are equipped with a roughened concrete surface that gives desert tortoises' good traction. Desert Wildlife Unlimited tested this surface with a captive desert tortoise and desert tortoise successfully negotiated the ramp from the bottom of the guzzler. In addition, CDFG surveyed guzzler waters for bones of animals and did not find any desert tortoise remains in them.

North Algodones Dunes Wilderness Management Area: This area contains a large, unquantified acreage of microphyll woodland to the east of the Algodones Dunes. Since this management area would continue to be managed as wilderness with almost no vehicular access, impacts to desert tortoises in this area would be negligible. As with the Mammoth Wash Management Area, guzzlers are present but represent little threat to desert tortoises.

Glamis Management Area: This area is heavily impacted by OHVs near the Glamis Store on its northeast corner and along the wash road for 3-4 miles southward. This impact distance was recently lengthened as a result of the camping closure east of Glamis Management Area, as hundreds of campers moved into the creosote scrub and microphyll woodland south of Glamis Management Area in response to the closure (N. Hamada, pers. comm. 2002). These portions of the management area are subject to some of the heaviest OHV impacts in the Algodones Dunes and substantial damage to any remaining desert tortoises could occur. Approximately 2,000 acres of staging areas may be present in this management area under the proposed RAMP. These areas have, or will eventually result in, widespread devegetation and soil compaction. In the unlikely event that a desert tortoise would enter a staging area, there is a high probability of it being killed, injured, or collected. Pit toilets proposed for the washes could result in increases in visitor use that may expand and intensify impacts. Due to the low number of desert tortoises in the area, this action is not likely to have any impact on the desert tortoise population.

BLM proposes to allow camping in the area east of Glamis Management Area and the railroad tracks. This action would probably reduce adverse effects to the desert tortoise habitat southeast of Glamis Management Area, as visitors moved back to the area east of Glamis Management Area. Since this area is an old mining site that has already sustained an extreme loss of vegetation and soil compaction, impacts to desert tortoise at the newly reopened site are likely to be minimal. This area has little value to desert tortoises due to the presence of the railroad, Ted Kipf Road, and State Route 78, all of which have probably depressed or eliminated desert tortoise numbers over time. The predator attraction associated with the Glamis Store and its trash also probably attracts predators that are likely to prey on desert tortoises in this area. For

these reasons, the area has little value as desert tortoise habitat and is well suited for camping. However, an occasional desert tortoise may wander into the area from the east and be crushed, eaten, or collected. Some OHV riders could travel out into the relatively intact creosote and microphyll areas adjacent to the camping area, and resulting levels of trash would probably increase in the area, attracting desert tortoise predators such as coyotes and ravens. About 100 acres of creosote bush scrub and microphyll woodland would experience reduced impacts by this measure, while the degraded mining area east of Glamis Management Area would experience increased impacts. The proposed regular grading of Wash Road could result in death or injury to desert tortoise. However, such incidences likely would be rare because of the low density of desert tortoises in the area, and the fact that no desert tortoise mortalities have been documented during previous grading of this road.

Adaptive Management Area: This area has a large, unquantified area of microphyll woodland and creosote bush scrub on its east side that could contain desert tortoises. Desert tortoises have never been reported on the west side of the management area and are unlikely to occur there. Most of the 525 OHV riders permitted into this area each day are anticipated to ride in the active dune areas in the west and central parts of the area. The education program associated with the proposed permit program could lead to a reduction in impacts to desert tortoise if OHV riders cooperate in avoiding sensitive habitats and refrain from damaging vegetation or collecting desert tortoises. Desert tortoises are unlikely to be affected in this area.

Ogilby Management Area: This area contains a large, unquantified acreage of microphyll woodland and creosote scrub that likely supports desert tortoises. Riding and camping in this management area could result in desert tortoise mortality, collecting, or habitat damage, as well as predator attraction. No additional actions are planned for Ogilby Management Area in the proposed RAMP. Desert tortoises could be negatively affected in this area, although the low number of desert tortoises in the area suggests that the effect would be minor.

Buttercup Management Area: This area would continue to receive heavy OHV pressure under the RAMP and impacts to desert tortoises might occur. An absence of sightings since the late 1980's suggests desert tortoises are uncommon in the area. However, any desert tortoise that did enter this management area would have a high probability of mortality or collection because of the high visitation and the presence of Interstate 8.

Summary: Overall, the proposed RAMP would likely elevate impacts to desert tortoise in the ISDRA, although any effects may not be measurable, given the apparent low densities in the area. The recovery plan calls for the focus of recovery for the species to be in BLM's system of DWMAs, the closest of which is 6 miles from the ISDRA. The ISDRA is located along the edge of the range of the species and is peripheral to established conservation strategies for the species. The overall population of desert tortoise is not likely to be affected, although individual desert tortoises may be killed or injured. Increases in ISDRA visitation would result in further degradation of desert tortoise habitat and reduced survivorship of individuals. The number of desert tortoises killed or adversely impacted by proposed activities is unknown but given the

apparent sparse density of desert tortoises, is probably relatively low. The partial barriers created by the railroad, Ted Kipf Road, and flood control dikes reduce the potential for desert tortoise movement into the ISDRA from the more plentiful populations to the east. A lack of demographic augmentation from the east would increase the potential for extirpation within the ISDRA. Indirect effects may occur due to raven and coyote attraction to human byproducts in the ISDRA; however such effects could be minimized by effective waste management. Therefore, given the sparse densities of desert tortoises in the area and the proposed actions that manage for desert tortoise, the impact to the species would likely be minimal.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. According to the Final EIS on the proposed RAMP (pages 14-19), there are about 159,000 BLM acres, 7,000 privately owned acres and 900 state owned acres within the ISDRA. In addition, the 1-mile wide area around the ISDRA boundary includes about 48,300 BLM acres, 1,800 acres of military managed land, and 9,100 acres of private land. Based on information from BLM, our records, and contact with people in the area, we are unaware of any future State, tribal, local, or private actions proposed in the ISDRA action area.

CONCLUSION

It is our biological opinion that implementation of the CDCA Plan, as amended by the ISDRA RAMP and subsequent revisions agreed upon during the consultation process, is not likely to jeopardize the continued existence of Peirson's milk-vetch or desert tortoise over the 10- to 15-year length of the ISDRA RAMP; nor is it likely to destroy or adversely modify critical habitat for the Peirson's milk-vetch over the 10- to 15-year length of the ISDRA RAMP. We reached these conclusions for the following reasons:

Peirson's milk-vetch

1) Under the proposed RAMP, continued and expanded species degradation is likely; however, a monitoring plan and an interim population threshold for each management area will be identified that will necessitate management measures, which will include closures if necessary, pursuant to 43 CFR § 8341.2, should reproductive Peirson's milk-vetch plants in any management area decline to or below the determined threshold. This limit would ensure the conservation of the species. During the initial 4 years of intensive data collection (which began in 2004), the 2004 data will be used as the baseline from which to determine change to the plant numbers. The plant's

presence is naturally cyclic which is likely in response to rainfall. If there is a noticeable decline in the species abundance, BLM has the management authority to temporarily suspend use in one of more of the management areas.

2) BLM plans to collect information necessary for improved recreation management, specifically, data on OHV use levels and use patterns, Peirson's milk-vetch status throughout the Algodones Dunes, and effects of OHVs on plants. This monitoring and research program would contribute to improved management and protection of Peirson's milk-vetch individuals. These data will assist in the development for potential closure thresholds throughout the Algodones Dunes.

3) If a 50 percent decline in the number of reproductive plants (or threshold further defined by the Service and BLM) occurs in a management area, that management area will be closed and BLM will work with the Service to develop an adaptive management strategy to conserve Peirson's milk-vetch within the management area. Since each management area that supports Peirson's milk-vetch would be addressed in this fashion, Peirson's milk-vetch would be conserved throughout the Algodones Dunes.

Peirson's milk-vetch critical habitat

1) Under the proposed RAMP, continued and expanded habitat degradation is likely; however, a monitoring plan and an interim population threshold for each management area will be identified that will necessitate management measures, which will include closures if necessary, pursuant to 43 CFR § 8341.2, should the monitoring data indicate that the conservation function of the primary constituent elements of any designated critical habitat is being impaired. During the initial 4 years of intensive data collection (which began in 2004), the 2004 data will be used as the baseline from which to determine change to the plant numbers. The plant's presence is naturally cyclic, largely in response to rainfall patterns. If there is a noticeable decline in the species abundance, BLM has the management authority to temporarily suspend use in one of more of the management areas. Since changes in species abundance are likely to occur if critical habitat is adversely affected, monitoring the population abundance would allow us to assess the ongoing status of the primary constituent elements of the critical habitat. In addition, since no vehicle threats are anticipated in 52 percent of the critical habitat (located in the Northern Algodones Dunes Wilderness), we do not anticipate activities in this area that could result in adverse modification of critical habitat.

2) BLM plans to collect information necessary for improved recreation management, specifically, data on OHV use levels and use patterns, Peirson's milk-vetch status throughout the Algodones Dunes, and effects of OHVs on plant survival and long-term recovery. This monitoring and research program would contribute to improved

management of critical habitat and protection of Peirson's milk-vetch individuals. These data will assist in the development of thresholds for potential closures throughout the Algodones Dunes.

3) The areas identified as critical habitat are designated as low to moderate OHV use. No motorized use is allowed except for law enforcement and maintenance in the North Algodones Dunes Wilderness Management Area. The Mammoth Wash Management Area receives low use, and the portion of Ogilby Management Area that has been designated critical habitat receives low to moderate use. Although there may be some change to dune function and structure, due to the low use of the critical habitat areas, the activities are not likely to appreciably diminish the value and function of the critical habitat for the conservation of the Peirson's milk-vetch.

4) If, based on the process described on 20-22 of this document and illustrated in Figure 1, it is determined that degradation of critical habitat is taking place such that the conservation function of the critical habitat may be impaired, BLM will act to minimize the extent of the degradation.

Desert tortoise

1) The portions of the ISDRA in desert tortoise habitat encompass a small portion of the species' Eastern Colorado Desert Recovery Unit, lie outside the Chuckwalla DWMA, and support very low population levels.

2) Although 65,382 acres of microphyll woodland are mapped within the boundaries of the ISDRA and desert tortoises are known along the eastern edge of the dune system, few desert tortoises have been recorded in the ISDRA. Because of the low population levels and infrequent observations or reports of any adverse effects, it is difficult to conclude that there will be any effect at a population scale, although individual desert tortoises may be affected by encounters with OHVs.

INCIDENTAL TAKE STATEMENT

Sections 7(b)(4) and 7(o)(2) of the Act do not apply to the incidental take of listed plant species. However, protection of listed plants is provided in the Act to the extent that removal or reduction to possession of endangered or threatened plants from Federal lands requires a Federal permit. It is unlawful for any person to remove, cut, dig up, damage or destroy a listed plant species in knowing violation of any law or regulation of any state or in the course of any violation of a State criminal trespass law [section 9(a)(2)(B) of the Act].

Sections 4(d) and 9 of the Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species of fish and wildlife without a special exemption. Harm is further defined to include significant

habitat degradation or modification that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant.

The reasonable and prudent measures and implementing terms and conditions described below are non-discretionary, and must be undertaken by BLM for the exemption in 7(o)(2) to apply. BLM has a continuing duty to regulate the activity covered by this incidental take statement. If BLM fails to assume and implement the terms and conditions, the protective coverage of 7(o)(2) may lapse. In order to monitor the impact of the incidental take, BLM must report the progress of the action and its impact on species to the Service as specified in the incidental take statement [50 CFR § 402.14(i)(3)].

The CDCA as amended by the proposed RAMP describes several programs and projects under which BLM will need to make specific decisions with regard to future actions. Although we have evaluated the general nature of the effects of these actions, we cannot assess the potential effects of specific actions because information on the location, timing, and other aspects of the actions are not known at this time. Consequently, we cannot provide an exemption from the prohibitions against take, as described in section 9 of the Act, for the incidental take that may result from such actions.

AMOUNT OR EXTENT OF TAKE

The Service anticipates incidental take of desert tortoise in the ISDRA will be difficult to detect for the following reasons: 1) we cannot anticipate the precise numbers of desert tortoises that may be killed or injured because the number of desert tortoises within the ISDRA has not been estimated; 2) the ISDRA is large, desert tortoises are patchily distributed in this part of the species' range, and 3) we can not predict where and when the unmonitored recreational activities described herein will injure or kill desert tortoises. Incidental take may occur due to vehicle collision, collection associated with increasing levels of visitor use, changes in raven or other predator abundance associated with presence of people or trash, loss of cover from vehicle use, and approximately 50 acres of construction activities and road maintenance. We do not anticipate documentation of most desert tortoises that may be taken as a result of the proposed action due to the casual and dispersed nature of activities. However, the following level of take of this species will be quantified by the 65,382 acres of potential desert tortoise habitat within the ISDRA in microphyll woodland and creosote scrub to the east of the Algodones Dunes, and outside of the North Algodones Dunes Wilderness Management Area. We anticipate that there will be relatively few fatalities or injuries to desert tortoises. Given the limitations discussed above, this biological opinion provides exemption from the prohibitions against the incidental take of desert tortoise that may result from casual use associated with legal recreational activities, and regular grading of Wash Road.

REASONABLE AND PRUDENT MEASURES

The reasonable and prudent measures, with their accompanying terms and conditions, are necessary and appropriate to minimize the impact of the incidental take associated with implementation of the CDCA as amended by the RAMP within the ISDRA.

1. BLM shall increase public awareness about desert tortoise within the ISDRA, and develop a reporting mechanism so individuals using the ISDRA can report desert tortoise observations, injuries, or fatalities.

2. BLM shall improve trash management in the ISDRA to minimize attraction to potential predators of desert tortoise.

3. BLM shall minimize the potential for incidental take of desert tortoises during recreational use, facility construction, and maintenance activities.

4. BLM shall monitor and report take across the CDCA and communicate effectively amongst BLM offices and with the Service. BLM shall report recorded incidental take on an annual basis to the Service

5. BLM shall determine the level of desert tortoise mortality associated with wildlife guzzlers and other managed waters and take measures to minimize this mortality.

TERMS AND CONDITIONS

The following terms and conditions implement Reasonable and Prudent Measure number 1:

1.1 BLM shall develop a brochure to educate ISDRA visitors about desert tortoise and conservation needs. This brochure must include information regarding the location of desert tortoise habitat, and provide instruction that allows visitors to report desert tortoise sightings. This information may be incorporated as part of the proposed "Quick Facts" brochure. Information on desert tortoise, including reporting mechanisms, must be made available to visitors at all kiosks, pay stations, and ranger stations.

The following terms and conditions implement Reasonable and Prudent Measure number 2:

2.1 BLM shall install and operate adequate facilities to allow appropriate disposal of trash in heavily used areas. Trash receptacles must be inaccessible to coyotes and ravens. BLM shall monitor trash build-up and will take immediate action, should any overflow occur.

The following terms and conditions implement Reasonable and Prudent Measure number 3:

3.1 BLM shall conduct desert tortoise surveys along Wash Road immediately prior to grading, and training equipment operators to look for, recognize, and avoid desert tortoises. A biological monitor shall be present during grading and construction activities (e.g., pit toilets), unless they are conducted between November and March, the primary inactive period of the desert tortoise. If these studies repeatedly fail to find desert tortoises after several years of maintenance, this survey requirement may lapse, pending written approval from the Service.

The following terms and conditions implement Reasonable and Prudent Measure number 4:

4.1 To ensure that the measures proposed by BLM are effective and being properly implemented, BLM shall contact the Service immediately if a desert tortoise is killed or injured. At that time, the Service and BLM shall review the circumstances surrounding the incident to determine whether additional protective measures are required.

The following terms and conditions implement Reasonable and Prudent Measure number 5:

5.1. Within 2 years of issuance of this biological opinion, BLM shall inventory all guzzlers located within desert tortoise habitat and assess their potential to trap desert tortoises. The assessment of the potential to trap desert tortoises shall be based on the design of the guzzler and the abundance of desert tortoises within the area of the guzzler.

5.2 Within 3 years of the issuance of this biological opinion, BLM shall retrofit all guzzlers that have been identified as having the potential to trap desert tortoises.

5.3 BLM shall retrofit all other guzzlers within desert tortoise habitat within 5 years of the issuance of this biological opinion.

5.4 If a desert tortoise is found trapped in any managed water or guzzler, the water or guzzler shall be retrofitted within 4 weeks. If the water or guzzler cannot be retrofitted within that time frame, it shall be fenced to preclude entry by desert tortoises.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We recommend that BLM should:

1. Consider simplifying the monitoring and management program by designating a large closed area in the central/southern portion of the Algodones Dunes as an Area of Critical Environmental Concern (ACEC) or Special Area as described in the CDCA Plan as a control. Such an area could correspond to the proposed Adaptive Management Area. This alternative, as identified in the draft EIS, would be to provide additional protection from disturbance to sensitive resources, including listed species, over a more extensive area of the Algodones Dunes. Protection of such an area would afford improved protection of Peirson's milk-vetch and other sensitive species, and simplify the management and monitoring program.

2. Consider using the existing interim "Southern Closure" as the boundary for the interpretive area proposed in the proposed RAMP. This area could serve the dual purpose of being easily accessible from existing parking resources, and provide additional conservation of the Peirson's milk-vetch.

3. Consider establishing a pilot program to determine the effectiveness of a smaller-scale, voluntary, closure strategy around discrete Peirson's milk-vetch concentrations (or subpopulations). To accomplish this, BLM could randomly install protective signs around select subpopulations that advise against vehicular entry to benefit the species, while still providing access throughout the areas surrounding the signed zones. Monitoring should be designed to determine the extent of compliance compared with unrestricted access to select unsigned subpopulations. Depending on the results, such a voluntary conservation strategy may prove to have larger-scale utility across the ISDRA.

4. Expand the ecological education programs within the ISDRA and include hikes, etc. as part of the promoted recreational program.

5. Create a research coordinator position to oversee the overall monitoring and Adaptive Management Program for the ISDRA.

6. Conduct comparative demographic studies on Peirson's milk-vetch populations that occur in heavily used areas and in unused areas.

7. Work with the OHV community regarding education and avoidance of the plant. Use education, incentives, and self-policing to increase knowledge and awareness of the Peirson's milk-vetch. Encourage OHV users to avoid the plant in order to assist in managing the use areas for the long-term benefit of OHV recreation and the plant's conservation.

8. Within the Ogilby Management Area, consider directing users away from the area designated as critical habitat through education, fencing, or other practical means.

9. Consider analyzing affects of recreation use over a 21-day period of use instead of the 37-day period in order to use a more relevant time period that reflects conditions in the field.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions that promote the conservation of listed species.

REINITIATION NOTICE

This concludes formal consultation on the proposed action outlined in the request. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount of extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this biological opinion; (4) a new species is listed or critical habitat designated may be affected by the action, or (5) the proposed action and associated monitoring is not implemented as submitted.

BLM has made a commitment to conduct an annual review of RAMP implementation to determine if the plan is achieving its goals and objectives and will include in the review an analysis of all monitoring data collected. The findings will be made available to the Service for review and comment. Based on the Service's annual review of the BLM RAMP implementation review, we may request that BLM reinitiate consultation if the data warrant reinitiation.

Appendix A

Recreation Opportunity Spectrum (ROS) Definitions

Semi-Primitive Non-Motorized
Semi-primitive non-motorized areas are managed to be largely free from the evidence of humans and on-site controls. Motor vehicle use is not permitted (except as authorized). Facilities for the administration of livestock and for visitor use are allowed but limited. Project designs stress the protection of natural values and maintenance of the predominantly natural environment. Areas are managed to maintain a good probability of experiencing minimum contact with others, self-reliance through the application of backcountry skills, and an environment that offers a high degree of risk and challenge. Back country use and management of renewable resources are dependent on maintaining naturally occurring ecosystems. The consumption of renewable resources is subject to the protection of back country recreational values.

Semi-Primitive Motorized
These areas are managed to provide a natural-appearing environment. Evidence of humans and management controls are present but subtle. Motor vehicle use is allowed, but the concentration of users should be low. On-site interpretive facilities, low-standard roads and trails, trailheads, and signs should stress the natural environment and be the minimum necessary to achieve objectives. The consumption of natural resources is allowed. Effort is taken to reduce the impact of utility corridors, rights-of-way, and other surface-disturbing projects on the natural environment. Frequency of managerial contact with visitors is low to moderate.

Roaded Natural
Roaded natural areas are managed to provide a natural-appearing environment with moderate evidence of humans. Motor vehicle use is permitted and facilities for this use are provided. Concentration of users is moderate with evidence of others prevalent. Resource modification and use practices are evident but harmonize with the natural environment. Placement of rights-of-way, utility corridors, management facilities, and other surface-disturbing activities would be favored here over placement in semi-primitive non-motorized and semi-primitive motorized areas. The consumption of natural resources is allowed except at developed trailheads, developed recreational areas and sites, and where geological, cultural, or natural interests prevail. Frequency of managerial contact with visitors is moderate.

Rural
Rural areas are managed to provide a setting that is substantially modified with moderate to high evidence of civilization. Motor vehicle use is permitted. Concentration of users is often high with substantial evidence of others. Resource modification and use practices are mostly dominant in a somewhat manicured environment. Standards for road, highway, and facility development are high for user convenience. Frequency of managerial contact with visitors is moderate to high.

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